THE AUSTRALIAN SPECIES OF DIPLOGEOMYZA AND ALLIED GENERA (DIPTERA, HELEOMYZIDAE)

David K. McAlpine
The Australian Museum, Sydney

[Read 29th March, 1967]

Synopsis

The Australian species of the genus *Diplogeomyza* Hendel and three related new genera are described, and keys are given for their identification. Of these species 17 are described as new, two having been previously described. One of the new species is divided into two subspecies. It is pointed out that these genera, together with the New Zealand genera *Allophylopsis* Lamb and *Allophylina* Tonnoir and Malloch, form a compact monophyletic group to which may be attributed the status of a tribe.

Introduction

The family Heleomyzidae is distributed mainly in the temperate areas of the world. Some workers, stationed in North America and Europe, have maintained a division into two families—the Heleomyzidae and Trixoscelidae. With a study of southern temperate forms these concepts lose their meaning through the long series of annectant forms. Among the Australian genera here reviewed, *Leriopsis* has most of the characters associated with Heleomyzidae *sensu stricto,* whilst the closely related *Trixoleria* has a preponderance of the characters of Trixoscelidae. It is significant that of the characters given by Wheeler (1955) in defining the Trixoscelidae, the only one which can be claimed to separate even the Nearctic forms from the Heleomyzidae *sensu stricto* is the nature of the subcosta. When southern hemisphere forms are considered, even this character shows too much variation among related forms to have family value.

Explanatory Notes Pertaining to Descriptions

The nomenclature of wing veins is based on the system of Loew (1862 and elsewhere). The first branch of the radial veins is designated vein 1, and the subsequent veins are numbered up to vein 6 (=cubital + first anal). The term subcosta is, however, preferred to auxiliary vein. This system has the advantage of not implying unprovable homologies, and, in its application to the Schizophora, is the simplest possible notation.

The terminology of the male postabdomen is, for the most part, that used by me previously (McAlpine, 1960). The terms basiphallus and distiphallus are used to designate the distinct basal and distal divisions of the phallus or aedeagus.

The months in which specimens have been collected are indicated in small Roman numerals after each locality, followed by the extreme range of years of collection. The number of specimens and their present location are placed in parentheses. The names of the collectors D. H. Colless and D. K. McAlpine are abbreviated to the initials.

Collections in which examined material is located are indicated by the following abbreviations:

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Classification

The genera here considered form a well defined unit morphologically, with restricted geographical limits, and are therefore combined as a new supra-generic taxon. Because there are at present no acceptable subfamily divisions in the Heleomyzidae (the old division into Heleomyzidae and Trixoscelidae being difficult to apply for many genera), the new taxon is given the rank of tribe.

Tribe Allophylopsini nov.

Heleomyzidae with two pairs of fronto-orbitals, both of which are reclinate; propleural bristle minute; no mesopleural bristle; middle tibia with two very strong approximated dorsal bristles beyond middle but with no other bristles but the terminal ones; costa distinctly weakened just beyond humeral cross-vein; vein 7 abruptly discontinued well before margin; male postabdomen (Fig. 30) asymmetrical, with sternites 6 and 7 laterally placed, and tergite 6 free.

Distribution: The tribe occurs throughout New Zealand, including the Snares and Chatham Islands; and in Australia it probably occurs in all temperate forests. In tropical Queensland all recorded specimens are from an altitude of 2000 ft. or higher. This corresponds approximately with the distribution of the whole family Heleomyzidae in the Australian region, excepting the genus *Cairnsimyia* (Rhinotorinae) and a species of an undescribed genus, which occur in tropical lowlands. Within this region the Allophylopsini is the largest tribe or equivalent group. In Australia 19 of the 56 heleomyzid species known to the author (many undescribed) belong here. In New Zealand there are 16 described Allophylopsini among the 32 described species of Heleomyzidae (the species recorded under the genera *Heloclusia* (Pseudopomyzidae) and *Tethinosoma* (Tethinidae) being excluded from the family).

The genera *Diplogeomyza* (15 spp.), *Austroleria* (2 spp.), *Trixoleria* (1 sp.), and *Leriopsis* (1 sp.) are endemic to Australia. The genera *Allophylopsis* (= *Huttonomyia*) (15 spp.) and *Allophylina* (1 sp.) are endemic to New Zealand. Records of the former genus from Australia are undoubtedly due to misidentification of species of *Diplogeomyza* or *Austroleria*.

Biology: Very little is yet known on this subject. Adults of a majority of species are most frequently encountered in wet forest country, some of them being most prevalent in mountainous areas. They frequently settle on ferns and other low vegetation and, as their movements are not rapid, they are readily taken by sweeping. Feeding has not been observed in the field. In many areas, including such cool localities as Mount Wilson (3000 ft., Blue Mountains), adults may be taken in any month of the year. They could not be found, however, on days of very severe frost.

An adult of *Austroleria extensa* sp. nov. from Mount Majura near Canberra was reared from the fungus *Boletus granulatus* (Family Polyporaceae) by Dr. D. H. Colless. This is the only available indication of the larval habits of the tribe. It is noteworthy that in the possibly allied subfamily (or tribe) Suilliinae the larvae occur principally in fungi.

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Key to Genera of Allophylopsini

1. Scutellum bare, with only the major bristles 2
   Scutellum haired or setulose 4
2. Scutellum short, broadly rounded; arista plumose; costa not spinose ..... *Allophylina* Tonnoir and Malloch
   Scutellum more elongate, ovate-triangular; arista with very short hairs only; spaced costal spines usually distinguishable 3
3. Dorsocentrals 0 + 3; mesopleuron bare; wings with small markings on crossveins only ..... *Leriopsis* nov.
   Dorsocentrals 1 + 2; mesopleuron setulose; wings with extensive blackish markings ..... *Trixoleria* nov.
4. Prosternum setulose; base of radial vein with one or two fine posterior setulae on dorsal surface near hm crossvein; scutellum with a few fine hairs; dorsocentrals 0 + 3 ..... *Allophylopsis* Lamb
   Prosternum bare; base of radial vein bare; scutellum with rather coarse black setulae 5
5. Dorsocentrals 0 + 3; mesopleuron setulose; scutellum with a few setulae on ventral surface near apex ..... *Austroleria* nov.
   Dorsocentrals 1 + 3; mesopleuron bare; scutellum without ventral setulae ..... *Diplogeomyza* Hendel

Genus Leriopsis nov.

Head similar structurally to *Diplogeomyza*; fronto-orbital plates rather short, with two reclinate orbitals, the anterior one at about level of middle of frons. Antenna with third segment rounded-oval, almost orbicular, somewhat decumbent; arista minutely pubescent. Mesoscutum shortly setulose; scutellum similarly formed to that of *Diplogeomyza,* with four strong bristles and no hairs or setulae; three strong dorsocentrals, the foremost well behind suture; propleurals minute; mesopleuron bare; one sternopleural; prosternum bare. Fore coxa without very large hairs in male; hind femur with a series of anteroventral and posteroventral spines or thickened bristles in male only, legs otherwise as described for *Diplogeomyza.* Wings with distinct spaced costal spines; subcosta distinct throughout and distally diverging from vein 1; vein 1 not haired; vein 2 very slightly curved forward at extreme tip; venation otherwise as in *Diplogeomyza.* Male with abdominal sternite 6 sublateral, sternite 7 extending right round ventral surface; structure of post-abdomen of both sexes otherwise as in *Diplogeomyza.*

Type species: *Leriopsis montana* nov.

This genus shows most resemblance to *Trixoleria,* having a bare, subacute scutellum and pubescent arista. On the other hand there are characters which link it to the Suilliini, notably the shortened fronto-orbital plates which slope inwards from the eye margin, and the well developed subcosta diverging from vein 1. As the absence of a strong propleural bristle and the shortening of vein 7 are characters shared by all Suilliini, it is possible that this is a primitive genus linking the two tribes.

Leriopsis montana sp. nov.

♂ ♀. Head, including palpi, fulvous; cheeks a little paler than frons; third antennal segment brownish. Thorax fulvous, darkening to tawny on dorsal surface. Legs fulvous to brownish-yellow, fore femur, tibia, and tarsus brown; hind femur, tibia, and tarsus variably browned distally. Wing (Fig. 3) greyish hyaline with darker grey marks on anterior and posterior crossveins only. Abdomen tawny, tergites 2–4 brown.

Head about as long as high; frons slightly over half as wide as head, with numerous short setulae anteriorly; cheek about one third as high as eye, with numerous short setulae between vibrissa and posterior cheek bristle; face concave in profile.

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Head about as long as high; frons slightly over half as wide as head, with numerous short setulae anteriorly; cheek about one third as high as eye, with numerous short setulae between vibrissa and posterior cheek bristle; face concave in profile.

Prescutellar pair of acrostichals present; mesoscutum with numerous short, coarse black setulae. Second section of costa (between veins 1 and 2) 4·6–4·8 times as long as third section; ultimate section of vein 4, 1·6 times as long as penultimate section.

Male postabdomen with a well developed epandrial lobe (Figs. 6A, B) in front of each surstylus, which is flexed inwards anteriorly and bears setulae on its inner surface near apex; surstylus slightly more than twice as long as wide (not taking into account the posteriorly expanded base), anterior margin almost straight, posterior margin convexly curved, apex obtuse, a number of short setulae on inner surface; paramere (Fig. 6C) narrowed distally, subacute at apex, with three fine setulae anteriorly near base; basiphallus sclerotized, rather short, but with a very long epiphallus, which is curved, with a rounded, slightly expanded apex; distiphallus somewhat elongate, membranous, with a pair of faintly sclerotized longitudinal strips; cerci with rather long, crimped hairs.

Female postabdomen without exceptionally modified segments.

Dimensions: total length, ♂ 2·9–4·5 mm., ♀ 3·3–4·5 mm.; length of thorax, ♂ 1·7–2·2 mm., ♀ 2·0–2·5 mm.; length of wing, ♂ 3·8–5·2 mm., ♀ 4·5–5·6 mm.

Distribution: highlands of Tasmania and southern Victoria.

Material examined: *Tasmania*: Lake Wilks to Lake Dove, Cradle Mountain, i 1960 (*holotype* ♀, *paratypes,* 10 ♂, 8 ♀, AM), D.K.M.; Hanson's Peak to Cradle Mountain, 3500 ft., i 1960 (*paratypes,* 3 ♂, 6 ♀, AM), D.K.M.; Waldheim, Cradle Mountain, 2850 ft., i 1960 (*paratype* ♂, AM), D.K.M.; Cradle Mountain, 3000 ft., i 1925 (*paratypes,* 1 ♂, 1 ♀, QM); 16 miles NE of Cradle Mountain, i 1960 (*paratype* ♂, AM), D.K.M.; Mount Barrow, near Launceston, 3000 ft., i 1960 (*paratype* ♂, AM), D.K.M.; Franklin River crossing, Lyell Highway, i 1960 (*paratype* ♂, AM), D.K.M.; Lake Esperance, Hartz Mountains, i 1960 (*paratypes,* 1 ♂, 2 ♀ AM), D.K.M. *Victoria*: Mount Baw Baw, 5000 ft., ii 1960 (3 ♀ NMV), F. E. Wilson; Mount Baw Baw, near Tanjil Bren, 4200 ft., iii 1964 (1 ♀ AM), G. L. Bush.

Habitat: mountain forest and scrub; most plentiful within a short distance of tree line in Tasmania.

Genus Trixoleria nov.

Head similar structurally to *Diplogeomyza*; face not concave, with a slight median carina; fronto-orbital plates rather long, with two fronto-orbital bristles, the anterior one well in front of middle of frons. Third antennal segment rounded oval; arista with rather dense, short hairs, no longer than its basal diameter. Mesoscutum setulose; three dorsocentrals, the anterior one slightly in front of suture; prescutellar acrostichals absent or poorly differentiated; scutellum shaped as in *Diplogeomyza,* bare except for the four strong scutellars. Propleural very minute; mesopleuron with a few coarse setulae; one sternopleural with a group of setulae in front of it; prosternum bare or with one or two minute hairs at anterior extremity. Legs as in *Diplogeomyza* but fore coxa of male without very long distal hairs; hind femur of male not spinose. Wings with short, spaced costal spines; subcosta weak distally and situated rather close to vein 1; vein 2 rather short and curved forward distally; veins 3 and 4 slightly divergent distally; venation otherwise as in *Diplogeomyza.* Male postabdomen with tergite 6 sclerotized, setulose on posterior margin; other characters as in *Diplogeomyza.* Female postabdomen simple.

Prescutellar pair of acrostichals present; mesoscutum with numerous short, coarse black setulae. Second section of costa (between veins 1 and 2) 4·6–4·8 times as long as third section; ultimate section of vein 4, 1·6 times as long as penultimate section.

Male postabdomen with a well developed epandrial lobe (Figs. 6A, B) in front of each surstylus, which is flexed inwards anteriorly and bears setulae on its inner surface near apex; surstylus slightly more than twice as long as wide (not taking into account the posteriorly expanded base), anterior margin almost straight, posterior margin convexly curved, apex obtuse, a number of short setulae on inner surface; paramere (Fig. 6C) narrowed distally, subacute at apex, with three fine setulae anteriorly near base; basiphallus sclerotized, rather short, but with a very long epiphallus, which is curved, with a rounded, slightly expanded apex; distiphallus somewhat elongate, membranous, with a pair of faintly sclerotized longitudinal strips; cerci with rather long, crimped hairs.

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Habitat: mountain forest and scrub; most plentiful within a short distance of tree line in Tasmania.

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Type species: *Trixoleria maculata* sp. nov.

The name *Trixoleria* is derived from the generic names *Trixoscelis* and *Leria* and not directly from the Greek νρίξ, genitive τριχός (thrix, trichos); hence the spelling is trix- and not trich-.

Trixoleria maculata, sp. nov.

(Figs 1, 7)

♂ ♀. Frons brown, yellowish anteriorly, orbital margins whitish-dusted; occiput grey; cheeks and face yellowish; antennae brown, base of third segment yellowish; proboscis and palpi yellowish. Mesoscutum grey with two broad intradorsocentral dark-brown bands, a brown dot surrounding each setula and a larger brown spot at base of each dorsocentral bristle, some additional brown markings laterad of dorsocentrals, lateral margins greyish-yellow without markings; scutellum brown with greyish margins and median stripe; pleura brownish-grey with a darker brown longitudinal band on upper part. Legs brownish yellow, fore femur and usually also hind femur and four distal segments of fore tarsus dark-brown. Wings hyaline, with blackish and less distinct greyish markings as in Fig. 1. Halteres yellowish-brown, darker apically. Abdomen brown, distal margin of tergites paler.

Eye longer than high; cheek bristles short and fine. Wing with second section of costa about 1·9–2·1 times as long as third section.

Male postabdomen (Figs 7A, B) with surstylus oblong, broadly rounded apically, placed in an almost transverse plane, minutely setulose on inner surface; paramere narrowed, rather short, truncate at apex with the upper angle produced into a fine point; basiphallus stout, mostly membranous, with a pair of short broad lobes at base of distiphallus; distiphallus membranous, with a pair of large black sclerites, each of which is forked distally; cerci well developed, rounded, setulose.

Dimensions: total length, ♂ 2·6–3·0 mm., ♀ 3·0–3·4 mm.; length of thorax, ♂ 1·4–1·6 mm., ♀ 1·4–1·8 mm.; length of wing, ♂ 3·2–3·5 mm., ♀ 3·1–3·7 mm.

Distribution: New South Wales; Victoria; Tasmania; in the north, principally tablelands.

Material examined: *New South Wales* and *Australian Capital Territory*: Mount York, Blue Mountains, x 1960 (*holotype* ♂, AM), D.K.M.; Mount Boyce, Blue Mountains, iii iv 1963–1964 (*paratypes,* 4 ♂, 2 ♀, AM, 1 ♂, 1 ♀, BM, 1 ♂, USNM), D.K.M.; Wentworth Falls, Blue Mountains, xi 1960 (*paratype* ♂, AM), D.K.M.; Blue Mountains, i 1922 (*paratype* ♂, SPHTM); *Berowra Creek, near Sydney,* x 1960 (*paratype* ♀, CSIRO), D.H.C.; New England National Park, near Ebor, x 1962 (2 ♂, 1 ♀, CSIRO), D.H.C.; Gwydir Highway, 72 miles W of Grafton, xi 1964 (2 ♂, AM), D.K.M.; Black Mountain, Canberra, light trap, x 1955 (*paratype* ♀, CSIRO), vi 1960 (*paratype* ♀, CSIRO), I.F.B. Common; Pretty Point Creek, Mount Kosciusko, 5300 ft. (*paratype* ♂, CSIRO); Kunama, near Batlow, viii 1961 (*paratype* ♂, CSIRO), D.H.C.; Snowy-Thredbo Junction, Snowy Mountains, xi 1961 (*paratype* ♀, CSIRO), D.H.C.; 12 miles NW of Adaminaby, xi 1961 (*paratypes,* 2 ♂ CSIRO, 2 ♂. BM), D.H.C.; Burke's Creek, near The Rock, iv 1963 (*paratype* ♀, AM), D.K.M. *Victoria*: swamp margin, Benalla, iv 1963 (1 ♀, AM), D.K.M.; Devil's Elbow, 6 miles N of Woods Point, 3000 ft., iv 1963 (3 ♂, AM), D.K.M.; Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (2 ♀ AM), D.K.M.; 13 miles W of Matlock, iv 1963 (1 ♀, AM), D.K.M. *Tasmania*: Corinna, Pieman River, i 1960 (1 ♂, 1 ♀, AM), D.K.M.; Pieman River near Rosebery, i 1960 (2 ♀, AM), D.K.M.; Franklin River Crossing, Lyell Highway, i 1960 (4 ♀, AM), D.K.M.; Hobart, xi 1916 (1 ♀, NMV), C. E. Cole; Eaglehawk Neck, iv 1916 (1 ♂, 1 ♀, NMV), C. E. Cole.

Type species: *Trixoleria maculata* sp. nov.

The name *Trixoleria* is derived from the generic names *Trixoscelis* and *Leria* and not directly from the Greek νρίξ, genitive τριχός (thrix, trichos); hence the spelling is trix- and not trich-.

Trixoleria maculata, sp. nov.

(Figs 1, 7)

♂ ♀. Frons brown, yellowish anteriorly, orbital margins whitish-dusted; occiput grey; cheeks and face yellowish; antennae brown, base of third segment yellowish; proboscis and palpi yellowish. Mesoscutum grey with two broad intradorsocentral dark-brown bands, a brown dot surrounding each setula and a larger brown spot at base of each dorsocentral bristle, some additional brown markings laterad of dorsocentrals, lateral margins greyish-yellow without markings; scutellum brown with greyish margins and median stripe; pleura brownish-grey with a darker brown longitudinal band on upper part. Legs brownish yellow, fore femur and usually also hind femur and four distal segments of fore tarsus dark-brown. Wings hyaline, with blackish and less distinct greyish markings as in Fig. 1. Halteres yellowish-brown, darker apically. Abdomen brown, distal margin of tergites paler.

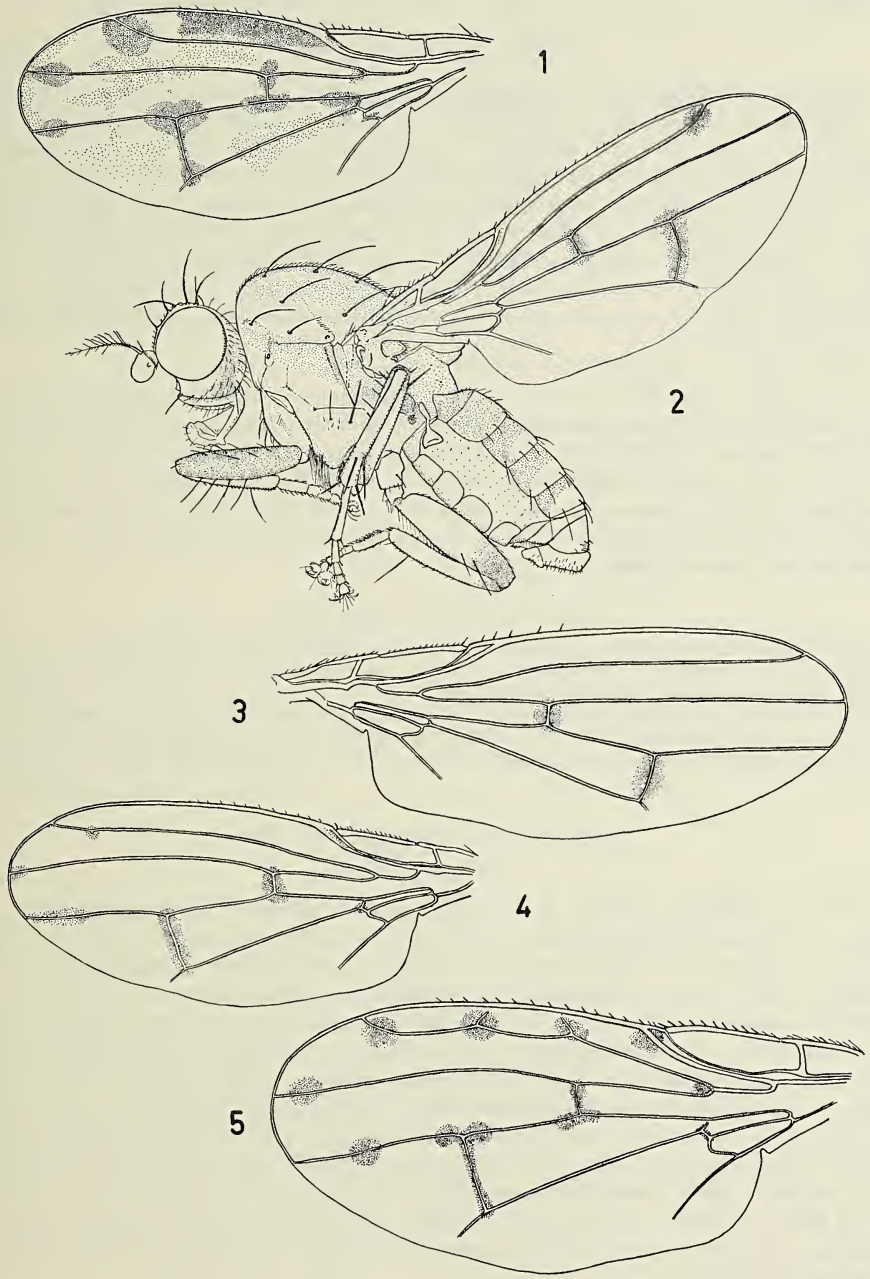
Eye longer than high; cheek bristles short and fine. Wing with second section of costa about 1·9–2·1 times as long as third section.

Male postabdomen (Figs 7A, B) with surstylus oblong, broadly rounded apically, placed in an almost transverse plane, minutely setulose on inner surface; paramere narrowed, rather short, truncate at apex with the upper angle produced into a fine point; basiphallus stout, mostly membranous, with a pair of short broad lobes at base of distiphallus; distiphallus membranous, with a pair of large black sclerites, each of which is forked distally; cerci well developed, rounded, setulose.

Dimensions: total length, ♂ 2·6–3·0 mm., ♀ 3·0–3·4 mm.; length of thorax, ♂ 1·4–1·6 mm., ♀ 1·4–1·8 mm.; length of wing, ♂ 3·2–3·5 mm., ♀ 3·1–3·7 mm.

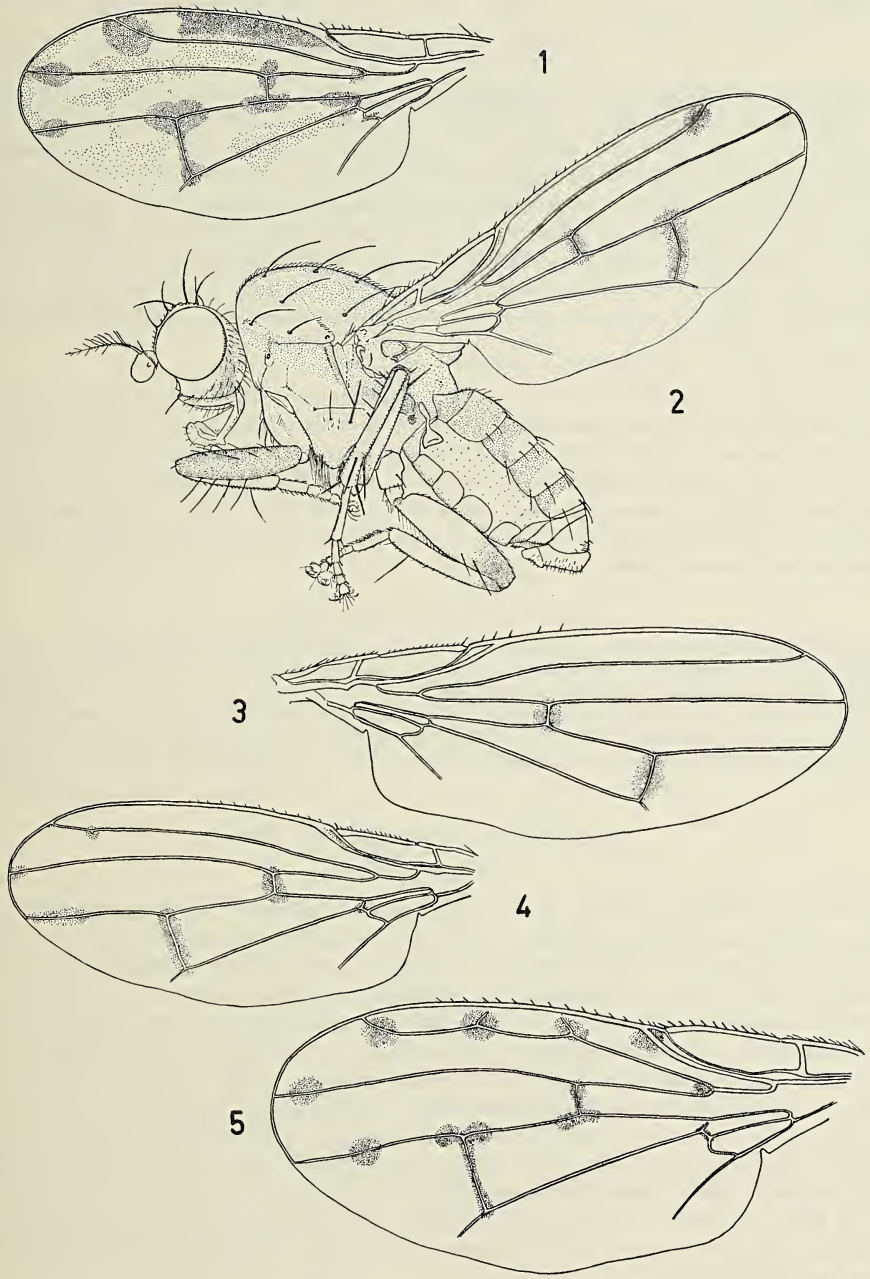
Distribution: New South Wales; Victoria; Tasmania; in the north, principally tablelands.

Material examined: *New South Wales* and *Australian Capital Territory*: Mount York, Blue Mountains, x 1960 (*holotype* ♂, AM), D.K.M.; Mount Boyce, Blue Mountains, iii iv 1963–1964 (*paratypes,* 4 ♂, 2 ♀, AM, 1 ♂, 1 ♀, BM, 1 ♂, USNM), D.K.M.; Wentworth Falls, Blue Mountains, xi 1960 (*paratype* ♂, AM), D.K.M.; Blue Mountains, i 1922 (*paratype* ♂, SPHTM); *Berowra Creek, near Sydney,* x 1960 (*paratype* ♀, CSIRO), D.H.C.; New England National Park, near Ebor, x 1962 (2 ♂, 1 ♀, CSIRO), D.H.C.; Gwydir Highway, 72 miles W of Grafton, xi 1964 (2 ♂, AM), D.K.M.; Black Mountain, Canberra, light trap, x 1955 (*paratype* ♀, CSIRO), vi 1960 (*paratype* ♀, CSIRO), I.F.B. Common; Pretty Point Creek, Mount Kosciusko, 5300 ft. (*paratype* ♂, CSIRO); Kunama, near Batlow, viii 1961 (*paratype* ♂, CSIRO), D.H.C.; Snowy-Thredbo Junction, Snowy Mountains, xi 1961 (*paratype* ♀, CSIRO), D.H.C.; 12 miles NW of Adaminaby, xi 1961 (*paratypes,* 2 ♂ CSIRO, 2 ♂. BM), D.H.C.; Burke's Creek, near The Rock, iv 1963 (*paratype* ♀, AM), D.K.M. *Victoria*: swamp margin, Benalla, iv 1963 (1 ♀, AM), D.K.M.; Devil's Elbow, 6 miles N of Woods Point, 3000 ft., iv 1963 (3 ♂, AM), D.K.M.; Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (2 ♀ AM), D.K.M.; 13 miles W of Matlock, iv 1963 (1 ♀, AM), D.K.M. *Tasmania*: Corinna, Pieman River, i 1960 (1 ♂, 1 ♀, AM), D.K.M.; Pieman River near Rosebery, i 1960 (2 ♀, AM), D.K.M.; Franklin River Crossing, Lyell Highway, i 1960 (4 ♀, AM), D.K.M.; Hobart, xi 1916 (1 ♀, NMV), C. E. Cole; Eaglehawk Neck, iv 1916 (1 ♂, 1 ♀, NMV), C. E. Cole.



Figs 1–5

1, *Trixoleria maculata*, sp. nov., right wing of holotype; 2, *Diplogeomyza wirthi*, sp. nov., holotype; 3, *Leriopsis montana*, sp. nov., left wing of holotype; 4, *Austroleria extensa*, sp. nov., right wing of holotype; 5, *Diplogeomyza pectinervis*, sp. nov., right wing of holotype.



Figs 1–5

1, *Trixoleria maculata*, sp. nov., right wing of holotype; 2, *Diplogeomyza wirthi*, sp. nov., holotype; 3, *Leriopsis montana*, sp. nov., left wing of holotype; 4, *Austroleria extensa*, sp. nov., right wing of holotype; 5, *Diplogeomyza pectinervis*, sp. nov., right wing of holotype.

Habitat: Forest Country and woodland; on the mainland occurring in sclerophyll forest and open woodland, but also in rain forest and mixed forest in Tasmania.

Genus Austroleria nov.

Head structurally as in *Diplogeomyza*; arista with very short hairs, which are slightly or not at all longer than its basal diameter. Thorax with three dorsocentrals, all behind suture; scutellum formed as in *Diplogeomyza,* coarsely setulose on dorsal surface and with a few hairs ventrally near apex; four scutellars; propleurals minute; mesopleuron setulose; one sternopleural; a group of very minute setulae usually visible on hypopleuron (metepimeron) below metathoracic spiracle; prosternum bare. Male postabdomen with segment 7 forming a sclerotized ring encircling the protandrium. Female postabdomen simple, without modified segments; cerci free, shortly cylindrical.

Type species: *Austroleria extensa* sp. nov.

The genus *Austroleria* is intermediate in most characters between *Allophylopsis* and *Diplogeomyza,* but differs from these and other Allophylopsini in the presence of minute hypopleural setulae. In the coarsely setulose scutellum, bare prosternum, bare base of vein R, and coloration of thorax, it approaches *Diplogeomyza* and differs from *Allophylopsis.* In the setulose mesopleuron and possession of only three pairs of dorsocentrals it resembles *Allophylopsis* more closely.

Key to Species of Austroleria

1. Median brown stripe on mesoscutum broad and diffuse, or sometimes obsolete; surstylus club-shaped; paramere without basal tubercle; sclerotized strips in distiphallus separate, weakly sclerotized ..... *extensa* nov.
   Median brown stripe on mesoscutum very narrow; surstylus very broadly truncate; paramere with setulose tubercle anteriorly at base; sclerotized strips in distiphallus strongly sclerotized and pigmented, fusing into a conspicuous sclerite proximally ..... *truncata* nov.

Austroleria extensa, sp. nov.

(Figs 4, 8)

♂ ♀. General colour brownish-yellow. Frons lightly suffused with brown; third antennal segment brown, paler at base; palpi brown to almost black, paler basally. Mesoscutum with three broad brown longitudinal bands, the outer ones partly divided by a paler stripe, the median band broad, but abruptly narrowed at anterior extremity; sometimes all these markings more or less obsolete; a conspicuous brown stripe commencing on humeral callus and extending over upper part of mesopleuron, pteropleuron, and pleurotergite to base of haltere; scutellum brownish dorsally, paler towards margins. Fore femur brown, paler basally; middle and hind femur broadly dark brown at apices; extreme bases of tibiae brownish. Wing (Fig. 4) greyish-transparent with distinct dark marks on anterior and posterior crossveins and vein closing base of discal cells; much fainter marks on apices of veins 2, 3, and 4. Abdominal tergites 2–5 and sternite 8 suffused with brown towards their posterior margins.

Male postabdomen (Figs 8A, B) with tergite 6 and sternite 6 reduced, the latter displaced to left; main body of sternite 7 on left lateral surface of protandrium, broadly fused with sternite 8 dorsally, its thickened, pigmented posterior rim forming a complete ring encircling the protandrium. Surstylus club-shaped, setulose distally on both inner and outer surfaces; paramere simple, directed posteriorly, setulose along anterior margin only; basiphallus largely membranous, with a sclerotized region on posterior surface and a pair

Habitat: Forest Country and woodland; on the mainland occurring in sclerophyll forest and open woodland, but also in rain forest and mixed forest in Tasmania.

Genus Austroleria nov.

Head structurally as in *Diplogeomyza*; arista with very short hairs, which are slightly or not at all longer than its basal diameter. Thorax with three dorsocentrals, all behind suture; scutellum formed as in *Diplogeomyza,* coarsely setulose on dorsal surface and with a few hairs ventrally near apex; four scutellars; propleurals minute; mesopleuron setulose; one sternopleural; a group of very minute setulae usually visible on hypopleuron (metepimeron) below metathoracic spiracle; prosternum bare. Male postabdomen with segment 7 forming a sclerotized ring encircling the protandrium. Female postabdomen simple, without modified segments; cerci free, shortly cylindrical.

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Austroleria extensa, sp. nov.

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♂ ♀. General colour brownish-yellow. Frons lightly suffused with brown; third antennal segment brown, paler at base; palpi brown to almost black, paler basally. Mesoscutum with three broad brown longitudinal bands, the outer ones partly divided by a paler stripe, the median band broad, but abruptly narrowed at anterior extremity; sometimes all these markings more or less obsolete; a conspicuous brown stripe commencing on humeral callus and extending over upper part of mesopleuron, pteropleuron, and pleurotergite to base of haltere; scutellum brownish dorsally, paler towards margins. Fore femur brown, paler basally; middle and hind femur broadly dark brown at apices; extreme bases of tibiae brownish. Wing (Fig. 4) greyish-transparent with distinct dark marks on anterior and posterior crossveins and vein closing base of discal cells; much fainter marks on apices of veins 2, 3, and 4. Abdominal tergites 2–5 and sternite 8 suffused with brown towards their posterior margins.

Male postabdomen (Figs 8A, B) with tergite 6 and sternite 6 reduced, the latter displaced to left; main body of sternite 7 on left lateral surface of protandrium, broadly fused with sternite 8 dorsally, its thickened, pigmented posterior rim forming a complete ring encircling the protandrium. Surstylus club-shaped, setulose distally on both inner and outer surfaces; paramere simple, directed posteriorly, setulose along anterior margin only; basiphallus largely membranous, with a sclerotized region on posterior surface and a pair

of longitudinal pigmented sclerotized strips; distiphallus with a pair of separate weakly sclerotized strips, one of which is very short.

Dimensions: total length, ♂ 3·2–4·8 mm., ♀ 3·1–4·5 mm.; length of thorax, ♂ 1·8–2·4 mm., ♀ 2·0–2·4 mm.; length of wing, ♂ 3·8–4·9 mm., ♀ 4·2–5·0 mm.

Distribution: *New South Wales*—principally tablelands, in north and south; *Victoria*—coast and mountains; *Tasmania*—generally distributed.

Material examined: *New South Wales and Australian Capital Territory*: Mount Wilson, Blue Mountains, 3000 ft., iii 1961 (*holotype* ♂, AM), i iii iv v vi ix x xii 1956–1964 (*paratypes,* 47 ♂, 56 ♀, AM, 2 ♂, 1 ♀, BM, 3 ♂, 3 ♀, USNM), D.K.M.; Mount York, Blue Mountains, x 1960 (*paratype* ♀, AM) D.K.M.; below Govett's Leap, Blue Mountains, xii 1956 (*paratypes,* 2 ♂, AM), D.K.M.; Katoomba, vi 1957 (*paratype* ♀, AM), G. H. Hardy; Wentworth Falls, x xi 1957–1965 (*paratypes,* 2 ♂, 2 ♀, AM), D.K.M.; Kurrajong, near Richmond, ix 1961 (*paratype* ♂, AM), D.K.M.; Tubrabucca, Upper Hunter district, 4000 ft., x 1956 (*paratypes,* 3 ♂, 2 ♀, AM), D.K.M.; Point Lookout, near Ebor, 5000 ft., iii 1960 (3 ♂, 4 ♀, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (8 ♂, 2 ♀, AM), D.K.M.; New England National Park, x 1962 (1 ♂, 1 ♀, CSIRO), D.H.C.; Otford, Illawarra District, x 1957 (*paratypes,* 2 ♂, 1 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (*paratypes,* 2 ♀, AM), D.K.M.; Monga, near Braidwood, vii 1962 (*paratypes,* 1 ♂, 1 ♀, CSIRO), D.H.C.; Mount Majura, near Canberra, ix 1961 (1 ♂, CSIRO), D.H.C.; Rutherford Creek, Brown Mountain, near Nimmitabel, viii 1962 (1 ♀, CSIRO), D.H.C.; The Creel, Snowy Mountains, xi 1961 (1 ♂, 1 ♀, CSIRO), D.H.C.; Leather Barrel Creek, Snowy Mountains, xi 1961 (2 ♀, CSIRO), D.H.C.; Snowy River, 5700 ft., xi 1961 (1 ♀, CSIRO), D.H.C. *Victoria*: Tyers, near Lakes Entrance, v viii 1925 (1 ♂, 2 ♀, NMV), J. Galbraith; Stratford, near Sale, x 1961 (2 ♀ CSIRO), D.H.C.; Mount Beauty, near Bright, x 1961 (1 ♂, 3 ♀, CSIRO), D.H.C.; Frenchman's Gap, near Woods Point, iv 1963 (6 ♂, 2 ♀, AM), D.K.M.; 13 miles W of Matlock, iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (3 ♂, 2 ♀, CSIRO), D.H.C.; Mount Donna Buang, near Warburton, iv 1963 (1 ♀, AM), D.K.M.; Cement Creek, near Warburton, iv x 1961-1963 (1 ♀, CSIRO), D.H.C., (6 ♂, 6 ♀, AM), D.K.M.; Warburton, iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Ferntree Gully, iv 1963 (1 ♂, 3 ♀, AM), D.K.M. *Tasmania*: 2 miles E of Weldborough, i 1960 (1 ♀, AM), D.K.M.; Mount Barrow, near Launceston, 3000 ft., i 1960 (4 ♂, 1 ♀, AM), D.K.M.; Marakoopa Caves, near Mole Creek, i 1960 (7 ♂, 1 ♀ AM), D.K.M.; Western Tiers, Lake Highway, 2250 ft., i 1960 (3 ♂, AM), D.K.M.; 12 miles S of Wilmot, i 1960 (1 ♀, AM), D.K.M.; 16 miles NE of Cradle Mountain, i 1960 (1 ♂, AM), D.K.M.; Hellyer Gorge, Waratah Highway, i 1960 (1 ♀, AM), D.K.M.; Pieman River, near Rosebery, i 1960 (1 ♂, 2 ♀, AM), D.K.M.; Franklin R. crossing, Lyell Highway, i 1960 (2 ♂, 2 ♀, AM), D.K.M.; Lake Saint Clair, i 1960 (1 ♂, AM), D.K.M.; near Russell Falls, Mount Field National Park, i 1960 (1 ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (3 ♂, 1 ♀, AM), D.K.M.; Ferntree, near Hobart, i 1960 (1 ♂, 4 ♀, AM), D.K.M.; Arve River, near Geeveston, i 1960 (1 ♂, 3 ♀, AM), D.K.M.; Hartz Mountains, 800 ft., i 1960 (1 ♂, AM), D.K.M.

Habitat: principally wet forest. The specimen from Mount Majura was reared from the fungus *Boletus granulatus* (family Polyporaceae).

Austroleria truncata, sp. nov.

♂ ♀. General characters as described for *A. extensa* with the following notable differences.

of longitudinal pigmented sclerotized strips; distiphallus with a pair of separate weakly sclerotized strips, one of which is very short.

Dimensions: total length, ♂ 3·2–4·8 mm., ♀ 3·1–4·5 mm.; length of thorax, ♂ 1·8–2·4 mm., ♀ 2·0–2·4 mm.; length of wing, ♂ 3·8–4·9 mm., ♀ 4·2–5·0 mm.

Distribution: *New South Wales*—principally tablelands, in north and south; *Victoria*—coast and mountains; *Tasmania*—generally distributed.

Material examined: *New South Wales and Australian Capital Territory*: Mount Wilson, Blue Mountains, 3000 ft., iii 1961 (*holotype* ♂, AM), i iii iv v vi ix x xii 1956–1964 (*paratypes,* 47 ♂, 56 ♀, AM, 2 ♂, 1 ♀, BM, 3 ♂, 3 ♀, USNM), D.K.M.; Mount York, Blue Mountains, x 1960 (*paratype* ♀, AM) D.K.M.; below Govett's Leap, Blue Mountains, xii 1956 (*paratypes,* 2 ♂, AM), D.K.M.; Katoomba, vi 1957 (*paratype* ♀, AM), G. H. Hardy; Wentworth Falls, x xi 1957–1965 (*paratypes,* 2 ♂, 2 ♀, AM), D.K.M.; Kurrajong, near Richmond, ix 1961 (*paratype* ♂, AM), D.K.M.; Tubrabucca, Upper Hunter district, 4000 ft., x 1956 (*paratypes,* 3 ♂, 2 ♀, AM), D.K.M.; Point Lookout, near Ebor, 5000 ft., iii 1960 (3 ♂, 4 ♀, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (8 ♂, 2 ♀, AM), D.K.M.; New England National Park, x 1962 (1 ♂, 1 ♀, CSIRO), D.H.C.; Otford, Illawarra District, x 1957 (*paratypes,* 2 ♂, 1 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (*paratypes,* 2 ♀, AM), D.K.M.; Monga, near Braidwood, vii 1962 (*paratypes,* 1 ♂, 1 ♀, CSIRO), D.H.C.; Mount Majura, near Canberra, ix 1961 (1 ♂, CSIRO), D.H.C.; Rutherford Creek, Brown Mountain, near Nimmitabel, viii 1962 (1 ♀, CSIRO), D.H.C.; The Creel, Snowy Mountains, xi 1961 (1 ♂, 1 ♀, CSIRO), D.H.C.; Leather Barrel Creek, Snowy Mountains, xi 1961 (2 ♀, CSIRO), D.H.C.; Snowy River, 5700 ft., xi 1961 (1 ♀, CSIRO), D.H.C. *Victoria*: Tyers, near Lakes Entrance, v viii 1925 (1 ♂, 2 ♀, NMV), J. Galbraith; Stratford, near Sale, x 1961 (2 ♀ CSIRO), D.H.C.; Mount Beauty, near Bright, x 1961 (1 ♂, 3 ♀, CSIRO), D.H.C.; Frenchman's Gap, near Woods Point, iv 1963 (6 ♂, 2 ♀, AM), D.K.M.; 13 miles W of Matlock, iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (3 ♂, 2 ♀, CSIRO), D.H.C.; Mount Donna Buang, near Warburton, iv 1963 (1 ♀, AM), D.K.M.; Cement Creek, near Warburton, iv x 1961-1963 (1 ♀, CSIRO), D.H.C., (6 ♂, 6 ♀, AM), D.K.M.; Warburton, iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Ferntree Gully, iv 1963 (1 ♂, 3 ♀, AM), D.K.M. *Tasmania*: 2 miles E of Weldborough, i 1960 (1 ♀, AM), D.K.M.; Mount Barrow, near Launceston, 3000 ft., i 1960 (4 ♂, 1 ♀, AM), D.K.M.; Marakoopa Caves, near Mole Creek, i 1960 (7 ♂, 1 ♀ AM), D.K.M.; Western Tiers, Lake Highway, 2250 ft., i 1960 (3 ♂, AM), D.K.M.; 12 miles S of Wilmot, i 1960 (1 ♀, AM), D.K.M.; 16 miles NE of Cradle Mountain, i 1960 (1 ♂, AM), D.K.M.; Hellyer Gorge, Waratah Highway, i 1960 (1 ♀, AM), D.K.M.; Pieman River, near Rosebery, i 1960 (1 ♂, 2 ♀, AM), D.K.M.; Franklin R. crossing, Lyell Highway, i 1960 (2 ♂, 2 ♀, AM), D.K.M.; Lake Saint Clair, i 1960 (1 ♂, AM), D.K.M.; near Russell Falls, Mount Field National Park, i 1960 (1 ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (3 ♂, 1 ♀, AM), D.K.M.; Ferntree, near Hobart, i 1960 (1 ♂, 4 ♀, AM), D.K.M.; Arve River, near Geeveston, i 1960 (1 ♂, 3 ♀, AM), D.K.M.; Hartz Mountains, 800 ft., i 1960 (1 ♂, AM), D.K.M.

Habitat: principally wet forest. The specimen from Mount Majura was reared from the fungus *Boletus granulatus* (family Polyporaceae).

Austroleria truncata, sp. nov.

♂ ♀. General characters as described for *A. extensa* with the following notable differences.

Third antennal segment usually paler than in *A. extensa*, sometimes browned only at apex; antennae yellowish, sometimes darkened at extreme apex. Mesoscutum with median dark-brown band very narrow and well defined. Spots at apices of veins 2–4 usually obsolete.

Male postabdomen (Figs 9A–C) similar to that of *A. extensa* with the following notable differences. Surstylus very broadly dilated and truncated distally; paramere with anterior basal tubercle, setulose on anterior margin, on basal tubercle, and on part of outer surface; basiphallus sclerotized and pigmented except on left lateral region, with two lobes at distal end, one of which is sclerotized, the other membranous; distiphallus with two long sclerotized strips which fuse basally to form a large heavily pigmented sclerite.

Dimensions: total length, ♂ 3·3–5·2 mm., ♀ 3·3–4·9 mm.; length of thorax, ♂ 2·2–2·6 mm., ♀ 2·2–2·7 mm.; length of wing, ♂ 4·4–5·3 mm., ♀ 4·5–5·5 mm.

Distribution: *New South Wales*—Central and Southern Tablelands; *Victoria*—coast to ranges; *Tasmania*—generally distributed.

Material examined: *New South Wales*: Mount Wilson, Blue Mountains, 3000 ft., iii 1961 (*holotype* ♂, AM), i iii iv vi vii ix x xii 1956–1963 (*paratypes*, 4 ♂, 4 ♀, BM, 4 ♂, 4 ♀, USNM, 49 ♂, 59 ♀, AM), D.K.M.; below Govett's Leap, Blue Mountains, xii 1956 (*paratype* ♂, AM), D.K.M.; Wentworth Falls, xi 1957 (*paratype* ♀, AM), D.K.M.; Kurrajong, near Richmond, ix 1961 (*paratype* ♀, AM), D.K.M.; Rutherford Creek, Brown Mountain, near Nimmitabel, iii xi 1961 (1 ♂, 1 ♀, CSIRO), D.H.C. *Victoria*: Nowa Nowa, x 1961 (1 ♂, 1 ♀, CSIRO), D.H.C.; Tarra Valley, South Gippsland, iii 1953 (1 ♂, NMV), A. Neboiss; Warburton, iv x 1961–1963 (1 ♂, CSIRO), D.H.C., (29 ♂, 25 ♀, AM), D.K.M.; Ferntree Gully, iv 1963 (3 ♂, 6 ♀, AM), D.K.M.; Sherbrook Forest, near Ferntree Gully (1 ♂, NMV), Mr. Singleton. *Tasmania*: 2 miles E of Weldborough, i 1960 (4 ♀, AM), D.K.M.; 2 miles E of Tonganah, i 1960 (1 ♂, AM), D.K.M.; Hellyer Gorge, Waratah Highway, i 1960 (2 ♂, 1 ♀, AM), D.K.M.; near Russell Falls, Mount Field National Park, i 1960 (1 ♂, 3 ♀, AM), D.K.M.; Eaglehawk Neck, i 1960 (1 ♂, 1 ♀, AM), D.K.M.

Genus Diplogeomyza Hendel

Two strong, reclinate fronto-orbitals; face somewhat concave. Third antennal segment oval. Dorsocentrals 1 + 3; acrostichals absent or represented only by the prescutellar pair; mesoscutum with numerous setulae on most of surface; scutellum oval, slightly produced between the apical bristles, with rather coarse black setulae; four strong scutellars and sometimes four additional shorter ones; mesopleuron devoid of hairs or bristles; one or sometimes two sternopleurals; propleurals weak or vestigial; prosternum bare. Fore coxae of male with numerous very long hairs, which are very fine and tend to curl at the tips; middle femur with strong anterior bristles; fore and hind tibiae each with one distinct preapical dorsal bristle; middle tibia with a pair of strong, approximated preapical dorsal bristles. Costa with short, spaced spines, weakened just beyond humeral crossvein, broken at end of subcosta; subcosta reaching to costa but not always easily distinguished from the sclerotized area in front of vein 1; vein 1 not haired; vein 2 rather long, curved forwards apically; anal cell complete, second basal cell almost so; vein 6 not nearly reaching margin. Abdomen of male with tergite 6 weakly sclerotized and bristleless; sternites 6 and 7 sublateral; articulated surstyli and distinct cerci present. Female with distinct cylindrical cerci.

Type species: *Diplogeomyza diaphora* Hendel.

It is possible to divide the species into groups on such characters as chaetotaxy, development of hairs on arista, and development of supernumerary crossveins. A careful study of the morphology of the fifteen species suggests

Third antennal segment usually paler than in *A. extensa*, sometimes browned only at apex; antennae yellowish, sometimes darkened at extreme apex. Mesoscutum with median dark-brown band very narrow and well defined. Spots at apices of veins 2–4 usually obsolete.

Male postabdomen (Figs 9A–C) similar to that of *A. extensa* with the following notable differences. Surstylus very broadly dilated and truncated distally; paramere with anterior basal tubercle, setulose on anterior margin, on basal tubercle, and on part of outer surface; basiphallus sclerotized and pigmented except on left lateral region, with two lobes at distal end, one of which is sclerotized, the other membranous; distiphallus with two long sclerotized strips which fuse basally to form a large heavily pigmented sclerite.

Dimensions: total length, ♂ 3·3–5·2 mm., ♀ 3·3–4·9 mm.; length of thorax, ♂ 2·2–2·6 mm., ♀ 2·2–2·7 mm.; length of wing, ♂ 4·4–5·3 mm., ♀ 4·5–5·5 mm.

Distribution: *New South Wales*—Central and Southern Tablelands; *Victoria*—coast to ranges; *Tasmania*—generally distributed.

Material examined: *New South Wales*: Mount Wilson, Blue Mountains, 3000 ft., iii 1961 (*holotype* ♂, AM), i iii iv vi vii ix x xii 1956–1963 (*paratypes*, 4 ♂, 4 ♀, BM, 4 ♂, 4 ♀, USNM, 49 ♂, 59 ♀, AM), D.K.M.; below Govett's Leap, Blue Mountains, xii 1956 (*paratype* ♂, AM), D.K.M.; Wentworth Falls, xi 1957 (*paratype* ♀, AM), D.K.M.; Kurrajong, near Richmond, ix 1961 (*paratype* ♀, AM), D.K.M.; Rutherford Creek, Brown Mountain, near Nimmitabel, iii xi 1961 (1 ♂, 1 ♀, CSIRO), D.H.C. *Victoria*: Nowa Nowa, x 1961 (1 ♂, 1 ♀, CSIRO), D.H.C.; Tarra Valley, South Gippsland, iii 1953 (1 ♂, NMV), A. Neboiss; Warburton, iv x 1961–1963 (1 ♂, CSIRO), D.H.C., (29 ♂, 25 ♀, AM), D.K.M.; Ferntree Gully, iv 1963 (3 ♂, 6 ♀, AM), D.K.M.; Sherbrook Forest, near Ferntree Gully (1 ♂, NMV), Mr. Singleton. *Tasmania*: 2 miles E of Weldborough, i 1960 (4 ♀, AM), D.K.M.; 2 miles E of Tonganah, i 1960 (1 ♂, AM), D.K.M.; Hellyer Gorge, Waratah Highway, i 1960 (2 ♂, 1 ♀, AM), D.K.M.; near Russell Falls, Mount Field National Park, i 1960 (1 ♂, 3 ♀, AM), D.K.M.; Eaglehawk Neck, i 1960 (1 ♂, 1 ♀, AM), D.K.M.

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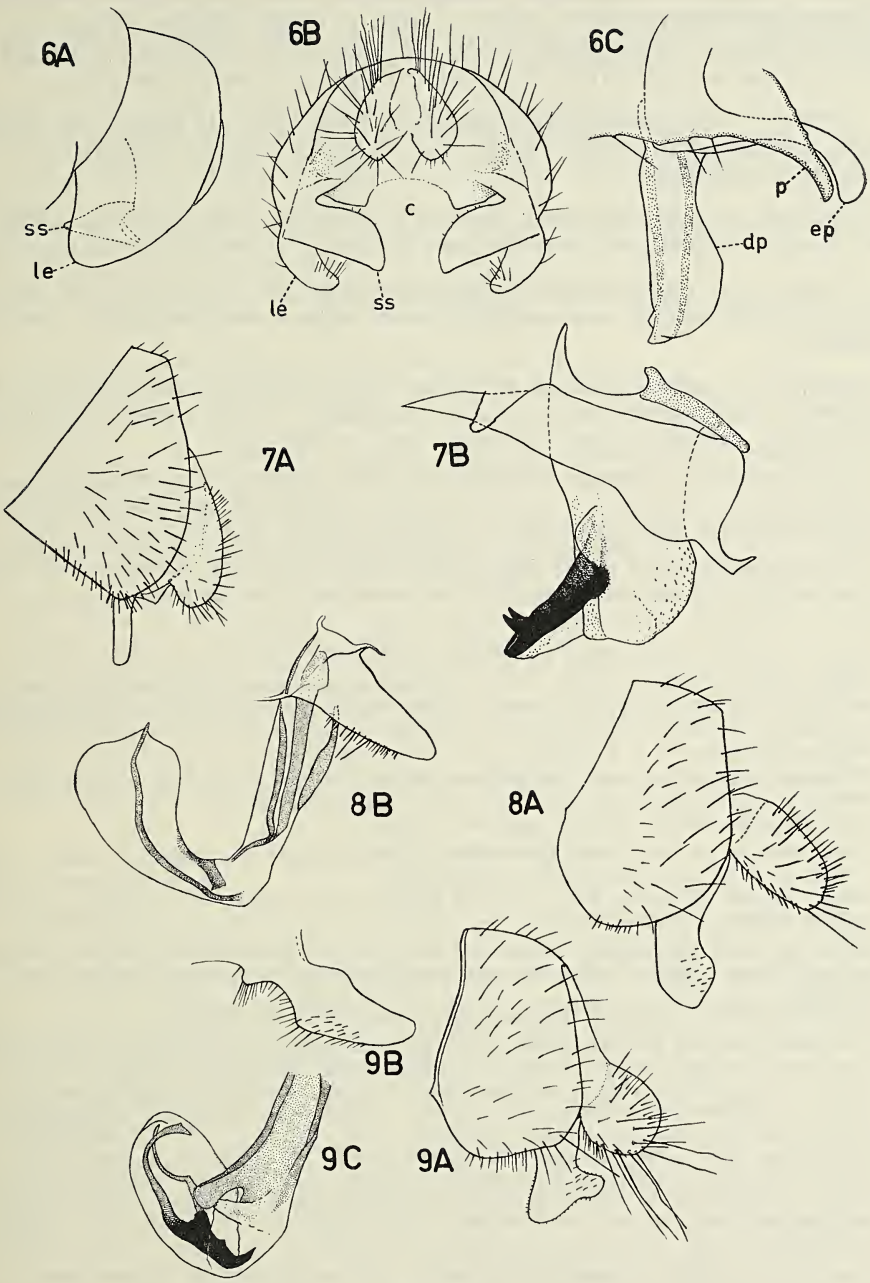
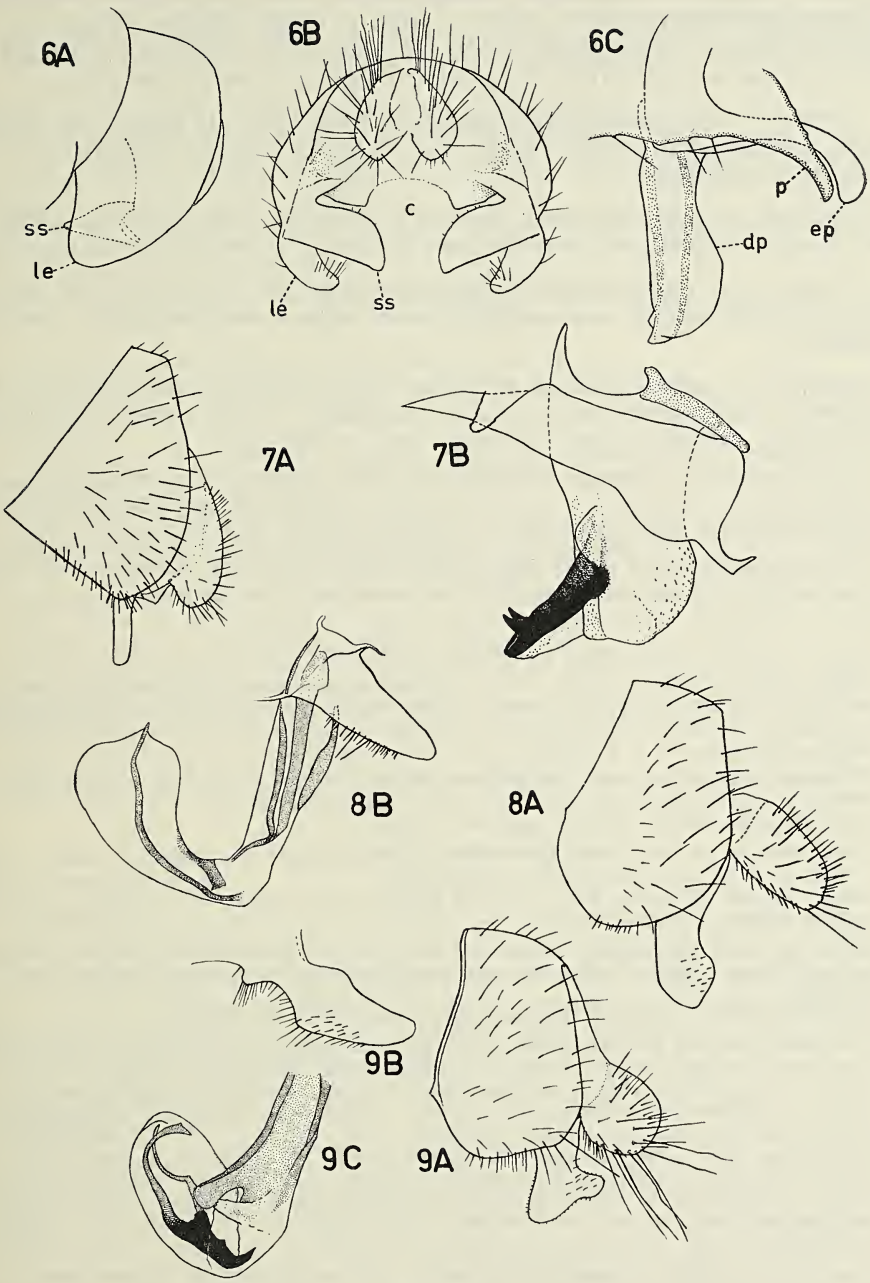


Figs 6–9

6, *Leriopsis montana*, sp. nov., paratype, Hanson's Peak to Cradle Mountain. A, antero-lateral aspect of epandrium. B, posterior aspect of epandrium. C, left paramere and aedeagus; 7, *Trixoleria maculata*, sp. nov., paratype, Wentworth Falls. A, epandrium. B, left paramere and aedeagus; 8, *Austroleria extensa*, sp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere and aedeagus; 9, *Austroleria truncata*, sp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere. C, aedeagus.

c, cercus; dp, distiphallus; ep, epiphallus; le, lobe of epandrium; p, paramere; ss, surstylus.



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that the structure of the female postabdomen is more significant in grouping the species naturally, and it is here used for distinguishing primary groups within the genus. No purpose would be served in giving these groups subgeneric names, as they cannot be readily keyed out for the male sex.

Group 1: ♀ postabdominal segments (Fig. 26) all short, not spinose; segment 7 with tergite and sternite free: ? *incisa* (female unknown), *wirthi, conformis, immaculata.*

Group 2: ♀ postabdominal segments (Fig. 27) not spinose; segment 7 elongate with tergite and sternite free: *hardyi, flavipalpis, diaphora, tridens.*

Group 3: ♀ postabdominal segments (Fig. 28) all short, not spinose: segment 7 with tergite and sternite fused into a complete ring: *victoriae, annularis.*

Group 4: ♀ postabdominal segments (Fig. 29) all short; tergites 7, 8 and sometimes 6, with short strong spines; segment 7 with tergite and sternite free: *spinosa, signata, media, maculipennis, pectinervis.*

As in the related genus *Allophylopsis*, the external copulatory organs of the male provide very clear cut specific characters, but are usually supported by characters of colour-pattern. *D. wirthi* and *D. conformis* can so far only be distinguished by the male sexual structures, and the females can only be determined by the uncertain method of association with males.

Key to Species of Diplogeomyza

1. Arista with very short hairs only; mesonotum patterned with small whitish spots and no longitudinal bands; female postabdominal tergites not spinose, segment 7 elongate ..... *hardyi* nov.
   Arista plumose 2
2. A series of blackish spots on anterior margin of wing; female postabdomen with numerous short spines on tergites 7 and 8, segment 7 short 3
   Wing margin spotted only at apices of veins 4
3. Costal margin of wing with three large squarish spots from apex of vein 1 to apex of vein 2, without supernumerary crossveins ..... *maculipennis* Malloch
   Costal margin of wing with four or more narrow spots in marginal cell, which enclose incomplete crossveins ..... *pectinervis* nov.
4. Scutellum with four long bristles and four (rarely more) shorter ones (in addition to usual dorsal setulae); female with postabdominal tergites not spinose, segment 7 elongate 5
   Scutellum with four long bristles only (in addition to setulae) 6
5. Fore femur largely greyish-brown, only the basal quarter or less paler, dull yellowish; hind femur conspicuously blackish or dark-brown apically; prominence on anterior margin of surstylus closer to base than to apex; paramere slightly swollen near apex, the extreme apex directed forwards; basiphallus short, the epiphallus nearly as long; distiphallus not toothed at apex ..... *diaphora* Hendel
   Fore femur dull yellowish, variably suffused with light-brown on distal half; hind femur brownish at extreme apex only; prominence on anterior margin of surstylus closer to apex than to base; paramere finely acuminate, the apex curved backwards; basiphallus long, heavily sclerotized, the epiphallus much shorter, distiphallus tridentate at apex ..... *tridens* nov.
6. Two (rarely three) sternopleural bristles; wing with distinct blackish spot at apex of vein 2, but none at apices of veins 3 and 4; the short distiphallus with a pair of ring-like sclerites 7
   One sternopleural bristle; dark spot at apex of vein 2, when present, not much more distinct than spots at apices of veins 3 and 4; distiphallus without paired ring-like sclerites 8
7. Surstylus very broad at base, then abruptly contracted, making the distal part comparatively narrow; paramere with two recurved, thorn-like processes near anterior margin; distal part of basiphallus with a spinous process on each side, the apex rounded and but slightly dilated ..... *wirthi* nov.
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Mesoscutum without a median pale band; dark spots present, though sometimes faint, at apices of veins 2, 3 and 4 9

9. Sternopleuron without dark oblique band on lower part 10
Sternopleuron with dark oblique band connecting fore and middle coxae 13

10. Tibiae blackened apically; a brown spot (rarely indistinct or absent) close in front of sternopleural bristle; distiphallus with a pair of opposed claws; female with abdominal tergites 7 and 8 spinose ..... *spinosa* nov.
Tibiae not darkened apically; no brown spot in front of sternopleural bristle; distiphallus without opposed claws; female without spines on postabdominal tergites (female unknown in *D. incisa*) 11

11. Palpi pale yellowish; distiphallus strap-shaped, with long, strong basal spines; female postabdomen with segment 7 elongate, the tergite and sternite free ..... *flavipalpis* nov.
Palpi brown; distiphallus not strap-shaped or spinose 12

12. Mesoscutum with a median blackish stripe, the dorsocentral lines with pale stripes; basiphallus very elongate, distiphallus with a pair of small lunular sclerites (female unknown) ..... *incisa* nov.
Mesoscutum with markings obsolete; basiphallus rather short, expanded distally, distiphallus without lunular sclerites; female postabdomen with segment 7 short, the tergite and sternite fused ..... *victoriae* nov.

13. A pair of narrow dark brown bands on dorsocentral lines; basiphallus elongate, distiphallus with numerous, densely packed black spines ..... *media* nov.
A pair of pale bands on dorsocentral lines; distiphallus not spinose 14

14. Mesopleuron suffused with brown on most of surface, somewhat darker above than below; band on sternopleuron rather diffuse; surstylus produced into a slender, tapering incurved apical part; skeletal structure of basiphallus forked, distiphallus with a ring-like sclerite; female without spines on postabdominal tergites, segment 7 short, with tergite and sternite fused ..... *annularis* nov.
Mesopleuron divided into dark-brown upper section and pale-yellowish lower section; band on sternopleuron narrow and distinct; surstylus short, blunt; aedeagus not as above, with several sclerites in distiphallus including a triradiate terminal one; female with tergites six to eight spinose, segment 7 short, with tergite and sternite free ..... *signata* nov.

Diplogeomyza incisa, sp. nov.

(Fig. 10)

♂. Coloration generally as described for *D. wirthi* (below), but the following characters are noteworthy. Antennae yellowish brown, the distal part of third segment only slightly darker. Fore femur brownish-yellow, darker brown on dorsal surface of distal half. Wings with dark-greyish marks on anterior and posterior crossveins and at apices of veins 2, 3, and 4, those on veins 3 and 4 not as dark as others.

Structure and chaetotaxy very similar to those of *D. wirthi*. Only one sternopleural bristle.

Postabdominal structures (Fig. 10A–C) most like those of *D. wirthi* and *D. conformis* but differing in detail; surstylus about three times as long as wide, not narrowed towards the apex, which is broadly rounded; paramere broad basally, contracted just before the very broad, truncate apical part; basiphallus long, tubular, sclerotized, not expanded at distal end where there is a lightly sclerotized median fissure, and an elongate lobe on left side; distiphallus extending well beyond basiphallus, membranous, with a dark, almost divided sclerite on posterior surface beyond which is a pair of lunular or Ω-shaped sclerites, apparently homologous with the ring-like sclerites of *D. wirthi* and *D. conformis*; cerci much shorter than surstyli, with moderately long hairs on most of surface.

Dimensions: total length 4·5 mm.; length of thorax 2·5 mm.; length of wing 4·8 mm.

Distribution: Victoria.

8. Mesoscutum with two intradorsocentral dark-brown bands enclosing a much paler median band; no dark spots at apices of veins; postabdominal tergites of female not spinose, segment 7 short, with free tergite and sternite ..... *immaculata* nov.
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11. Palpi pale yellowish; distiphallus strap-shaped, with long, strong basal spines; female postabdomen with segment 7 elongate, the tergite and sternite free ..... *flavipalpis* nov.
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14. Mesopleuron suffused with brown on most of surface, somewhat darker above than below; band on sternopleuron rather diffuse; surstylus produced into a slender, tapering incurved apical part; skeletal structure of basiphallus forked, distiphallus with a ring-like sclerite; female without spines on postabdominal tergites, segment 7 short, with tergite and sternite fused ..... *annularis* nov.
Mesopleuron divided into dark-brown upper section and pale-yellowish lower section; band on sternopleuron narrow and distinct; surstylus short, blunt; aedeagus not as above, with several sclerites in distiphallus including a triradiate terminal one; female with tergites six to eight spinose, segment 7 short, with tergite and sternite free ..... *signata* nov.

Diplogeomyza incisa, sp. nov.

(Fig. 10)

♂. Coloration generally as described for *D. wirthi* (below), but the following characters are noteworthy. Antennae yellowish brown, the distal part of third segment only slightly darker. Fore femur brownish-yellow, darker brown on dorsal surface of distal half. Wings with dark-greyish marks on anterior and posterior crossveins and at apices of veins 2, 3, and 4, those on veins 3 and 4 not as dark as others.

Structure and chaetotaxy very similar to those of *D. wirthi*. Only one sternopleural bristle.

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Dimensions: total length 4·5 mm.; length of thorax 2·5 mm.; length of wing 4·8 mm.

Distribution: Victoria.

Material examined: Fernshaw, 6 miles E of Healesville, iv 1963 (*holotype* ♂, AM), D.K.M.

Habitat: wet sclerophyll forest.

Though only one specimen is available of this form, it is possible to establish its status with a reasonable degree of accuracy. Its relationships are undoubtedly with *D. wirthi* and *D. conformis* but it differs from these two very closely related species in having only one sternopleural bristle and dark spots at the ends of veins 3 and 4. The characters of the surstyli. parameres and aedeagus are also quite distinctive.

Diplogeomyza wirthi, sp. nov.

(Figs 2, 11)

♂ ♀. Head dull yellowish; antennae yellowish-brown, third segment deeper brown to brown-black except at base; palpi brown to black. Mesoscutum reddish-brown, lateral margins pale yellowish, a pair of light greyish bands on dorsocentral lines and a broader light-grey median band which is divided by a dark-brown median stripe anteriorly; scutellum brown with grey dusting at sides; pleura brownish yellow with the usual dark brown band on upper part. Legs yellowish; fore femur dark-brown usually paler basally; middle femur narrowly brown and hind femur broadly blackish at apex; hind tibia slightly brownish at base and apex. Wing with a conspicuous blackish spot at apex of vein 2 and a blackish mark on anterior and on posterior cross vein. Abdomen greyish-brown, sometimes with yellowish markings.

Cheek bristles moderately developed; third antennal segment ovate; arista plumose, the longer upper hairs slightly shorter than width of third antennal segment.

Scutellum with coarse setulae on its entire upper surface; sternopleuron with two well developed upper bristles and some small setulae, one of which is occasionally developed into a third bristle. Second section of costa 2·3–2·5 times as long as third section.

Epandrium (Fig. 11A) with surstylus very broad basally, abruptly contracted into a narrow, slightly curved, obtuse distal part making the posterior margin deeply sinuate; paramere (Fig. 11B) broad, subtriangular, with two recurved thorn-like processes, one just before apex and one near middle of anterior margin; basiphallus (Fig. 11C) forming a long, heavily sclerotized tube which is split open distally, where it has a small sharp process on each side, the apex very slightly dilated and rounded; distiphallus (Fig. 11D) very short, membranous, arising from posterior surface of distal part of basiphallus, and containing two small ringlike sclerites; cerci shorter than surstyli with rather short hairs.

Female abdomen with tergites six to nine all distinct and setulose; simple, without obvious structural modifications; sternites six, seven and eight narrowed medially, setulose; sternite ten compact with numerous setulae; cerci rather short, with some long hairs at tip.

Dimensions: total length, ♂ 2·9–4·2 mm., ♀ 2·1–4·0 mm.; length of thorax, ♂ 1·5–2·3 mm., ♀ 1·5–2·4 mm.; length of wing, ♂ 3·5–4·7 mm., ♀ 3·1–5·0 mm.

Distribution: New South Wales—Tablelands as far north as Blue Mountains; Victoria; Tasmania.

Material examined: *New South Wales*: Colo Vale, near Mittagong, iii 1957 (*holotype* ♂, AM, *paratype* ♂, 2 ♀, USNM), W. W. Wirth; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (8 *paratypes* ♂, AM), D.K.M.;

Material examined: Fernshaw, 6 miles E of Healesville, iv 1963 (*holotype* ♂, AM), D.K.M.

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Diplogeomyza wirthi, sp. nov.

(Figs 2, 11)

♂ ♀. Head dull yellowish; antennae yellowish-brown, third segment deeper brown to brown-black except at base; palpi brown to black. Mesoscutum reddish-brown, lateral margins pale yellowish, a pair of light greyish bands on dorsocentral lines and a broader light-grey median band which is divided by a dark-brown median stripe anteriorly; scutellum brown with grey dusting at sides; pleura brownish yellow with the usual dark brown band on upper part. Legs yellowish; fore femur dark-brown usually paler basally; middle femur narrowly brown and hind femur broadly blackish at apex; hind tibia slightly brownish at base and apex. Wing with a conspicuous blackish spot at apex of vein 2 and a blackish mark on anterior and on posterior cross vein. Abdomen greyish-brown, sometimes with yellowish markings.

Cheek bristles moderately developed; third antennal segment ovate; arista plumose, the longer upper hairs slightly shorter than width of third antennal segment.

Scutellum with coarse setulae on its entire upper surface; sternopleuron with two well developed upper bristles and some small setulae, one of which is occasionally developed into a third bristle. Second section of costa 2·3–2·5 times as long as third section.

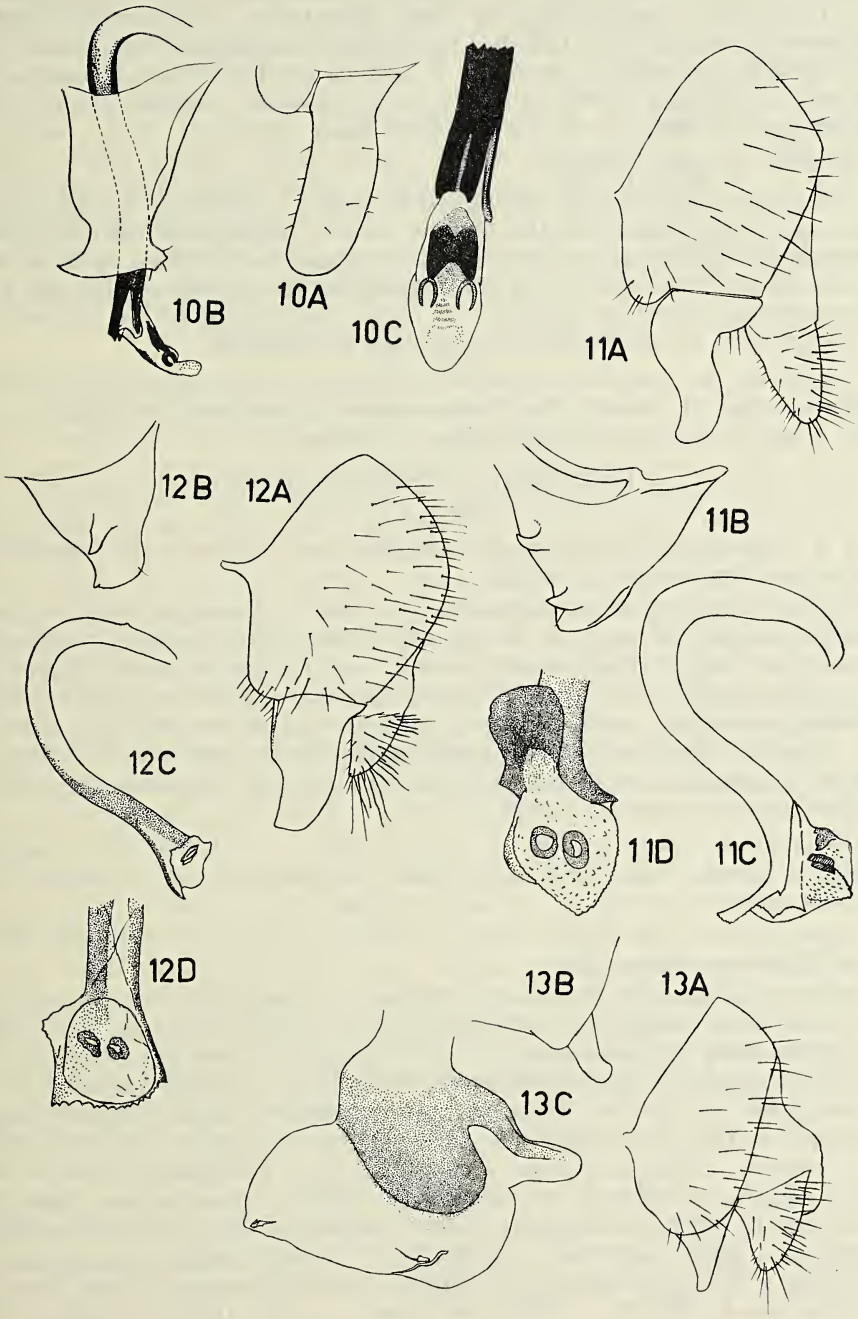
Epandrium (Fig. 11A) with surstylus very broad basally, abruptly contracted into a narrow, slightly curved, obtuse distal part making the posterior margin deeply sinuate; paramere (Fig. 11B) broad, subtriangular, with two recurved thorn-like processes, one just before apex and one near middle of anterior margin; basiphallus (Fig. 11C) forming a long, heavily sclerotized tube which is split open distally, where it has a small sharp process on each side, the apex very slightly dilated and rounded; distiphallus (Fig. 11D) very short, membranous, arising from posterior surface of distal part of basiphallus, and containing two small ringlike sclerites; cerci shorter than surstyli with rather short hairs.

Female abdomen with tergites six to nine all distinct and setulose; simple, without obvious structural modifications; sternites six, seven and eight narrowed medially, setulose; sternite ten compact with numerous setulae; cerci rather short, with some long hairs at tip.

Dimensions: total length, ♂ 2·9–4·2 mm., ♀ 2·1–4·0 mm.; length of thorax, ♂ 1·5–2·3 mm., ♀ 1·5–2·4 mm.; length of wing, ♂ 3·5–4·7 mm., ♀ 3·1–5·0 mm.

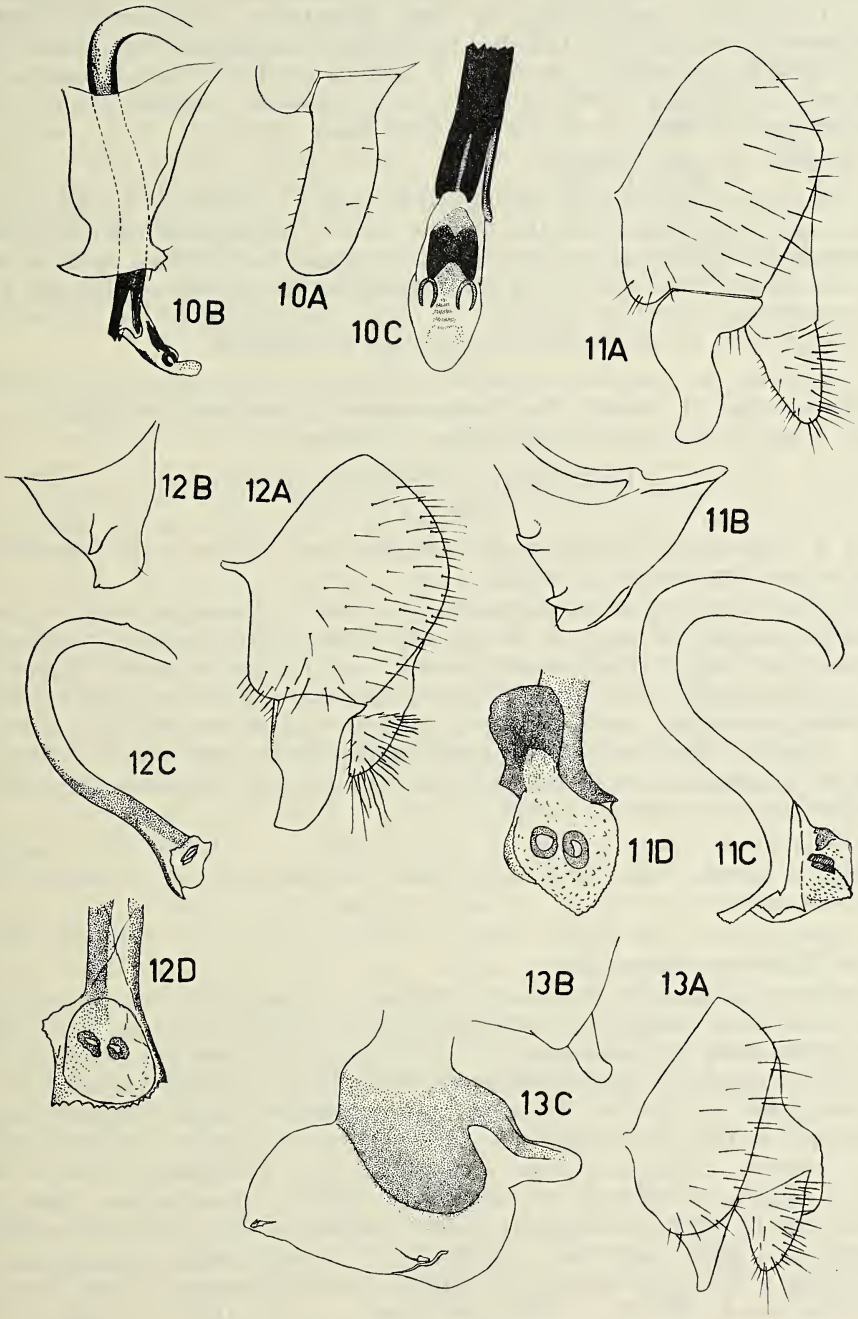
Distribution: New South Wales—Tablelands as far north as Blue Mountains; Victoria; Tasmania.

Material examined: *New South Wales*: Colo Vale, near Mittagong, iii 1957 (*holotype* ♂, AM, *paratype* ♂, 2 ♀, USNM), W. W. Wirth; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (8 *paratypes* ♂, AM), D.K.M.;



Figs 10–13

10, *Diplogeomyza incisa*, sp. nov., holotype. A, left surstylus. B, left paramere and aedeagus. C, terminal aspect of aedeagus; 11, *Diplogeomyza wirthi*, sp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere. C, aedeagus. D, terminal aspect of aedeagus; 12, *Diplogeomyza conformis*, sp. nov., paratype, Black Mountain, Canberra. A, epandrium. B, left paramere. C, aedeagus. D, terminal aspect of aedeagus; 13, *Diplogeomyza immaculata*, sp. nov., paratype, the Crater. A, epandrium. B, left paramere. C, aedeagus.



Figs 10–13

10, *Diplogeomyza incisa*, sp. nov., holotype. A, left surstylus. B, left paramere and aedeagus. C, terminal aspect of aedeagus; 11, *Diplogeomyza wirthi*, sp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere. C, aedeagus. D, terminal aspect of aedeagus; 12, *Diplogeomyza conformis*, sp. nov., paratype, Black Mountain, Canberra. A, epandrium. B, left paramere. C, aedeagus. D, terminal aspect of aedeagus; 13, *Diplogeomyza immaculata*, sp. nov., paratype, the Crater. A, epandrium. B, left paramere. C, aedeagus.

Otford, Illawarra District, x 1959 (1 ♀, AM), D.K.M.; Katoomba, xi 1956 (1 ♀, AM), G. H. Hardy; Mount York, Blue Mountains, x 1960 (*paratype* ♂, AM), D. K. M.; Mount Wilson, Blue Mountains, ii iii x 1957–1961 (7 *paratypes* ♂, 4 ♀, AM), D.K.M. *Victoria*: Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (1 ♂, AM), D.K.M. *Tasmania*: Mount Barrow, near Launceston, 3000 ft., i 1960 (1 ♂, 1 ♀, AM), D.K.M.; Arthur Plains, South-west District, ii 1965 (2 ♂, NMV), A. Neboiss.

Habitat: forest country.

This species can only be distinguished from *D. conformis* by the structure of the male terminalia, and the females of the two species cannot therefore be separated. All the above records of females are therefore open to doubt, and records of female specimens from localities where both species are known or suspected to occur are omitted. In males the distinguishing characters of the surstyli can be seen without dissection or clearing.

Diplogeomyza conformis appears to be able to withstand greater extremes of dryness than *D. wirthi*. The latter species is not kown to occur in areas of less than 30 inches mean annual precipitation.

Diplogeomyza conformis, sp. nov.

(Fig. 12)

♂ ♀. Agrees in all characters, except those of the male postabdomen, with the description of *D. wirthi*.

General structure of postabdomen and appendages (Figs 12A–D) somewhat similar to that of *D. wirthi*; surstylus not much broadened at base and but slightly narrowed towards apex, slightly curved sigmoidally, apex broadly obtuse to almost truncate, the inner surface setulose; paramere with one process near centre, apex of paramere subacute and bent outwards; distal part of basiphallus desclerotized medially, the apex dilated and truncate, denticulate on distal edge but without any processes, two ring-like sclerites present as in *D. wirthi*.

Dimensions: total length, ♂ 3·4–4·8 mm., ♀ 3·5–5·0 mm.; length of thorax, ♂ 1·9–2·4 mm., ♀ 1·9–2·5 mm.; length of wing, ♂ 4·0–4·9 mm., ♀ 4·1–5·2 mm.

Distribution: New South Wales—Southern tablelands to south western slopes; Victoria; Tasmania.

Material examined: *New South Wales* and *Australian Capital Territory*: Black Mountain, Canberra, in light trap, ix 1959 (*holotype* ♂, CSIRO), v ix x 1955–1960 (15 *paratypes* ♂, 17 ♀, CSIRO, 3 *paratypes* ♂, 5 ♀, AM), I. F. B. Common; Black Mountain, Canberra, ex blowfly trap x 1956 (7 *paratypes* ♂, 10 ♀, CSIRO), no collector's name; Mount Majura, Canberra, ix 1960 (*paratype* ♂, 1 ♀, CSIRO), D.H.C.; Mount Gingera, A.C.T., 5500 ft., i 1955 (*paratype* ♂, CSIRO), I. F. B. Common; Uriarra State Forest, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Sweetwater, Kain, near Braidwood, ix 1960 (*paratypes*, 2 ♂, CSIRO), D.H.C.; 18 miles SSE of Braidwood, x 1955 (*paratype* ♂, CSIRO), I. F. B. Common; 13 miles SE of Braidwood, x 1955 (*paratype* ♂, CSIRO), I. F. B. Common; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (*paratype* ♂, AM), D.K.M.; Paddy's River, near Marulan, ix 1956 (*paratype* ♂, 1 ♀, AM), D.K.M.; Gerogery, near Culcairn, x 1951 (*paratype* ♂, CSIRO), J. Calaby; The Creel, Snowy Mountains, xi 1961 (*paratype* ♂, 1 ♀, CSIRO), D.H.C. *Victoria*: Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (10 ♂, 2 ♀, AM), D.K.M.; 13 miles W of Matlock, iv 1963 (11 ♂, 13 ♀, AM), D.K.M.; Warburton, iv 1963 (3 ♂, 1 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (1 ♂, CSIRO), D.H.C., iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Mount Donna Buang,

Otford, Illawarra District, x 1959 (1 ♀, AM), D.K.M.; Katoomba, xi 1956 (1 ♀, AM), G. H. Hardy; Mount York, Blue Mountains, x 1960 (*paratype* ♂, AM), D. K. M.; Mount Wilson, Blue Mountains, ii iii x 1957–1961 (7 *paratypes* ♂, 4 ♀, AM), D.K.M. *Victoria*: Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (1 ♂, AM), D.K.M. *Tasmania*: Mount Barrow, near Launceston, 3000 ft., i 1960 (1 ♂, 1 ♀, AM), D.K.M.; Arthur Plains, South-west District, ii 1965 (2 ♂, NMV), A. Neboiss.

Habitat: forest country.

This species can only be distinguished from *D. conformis* by the structure of the male terminalia, and the females of the two species cannot therefore be separated. All the above records of females are therefore open to doubt, and records of female specimens from localities where both species are known or suspected to occur are omitted. In males the distinguishing characters of the surstyli can be seen without dissection or clearing.

Diplogeomyza conformis appears to be able to withstand greater extremes of dryness than *D. wirthi*. The latter species is not kown to occur in areas of less than 30 inches mean annual precipitation.

Diplogeomyza conformis, sp. nov.

(Fig. 12)

♂ ♀. Agrees in all characters, except those of the male postabdomen, with the description of *D. wirthi*.

General structure of postabdomen and appendages (Figs 12A–D) somewhat similar to that of *D. wirthi*; surstylus not much broadened at base and but slightly narrowed towards apex, slightly curved sigmoidally, apex broadly obtuse to almost truncate, the inner surface setulose; paramere with one process near centre, apex of paramere subacute and bent outwards; distal part of basiphallus desclerotized medially, the apex dilated and truncate, denticulate on distal edge but without any processes, two ring-like sclerites present as in *D. wirthi*.

Dimensions: total length, ♂ 3·4–4·8 mm., ♀ 3·5–5·0 mm.; length of thorax, ♂ 1·9–2·4 mm., ♀ 1·9–2·5 mm.; length of wing, ♂ 4·0–4·9 mm., ♀ 4·1–5·2 mm.

Distribution: New South Wales—Southern tablelands to south western slopes; Victoria; Tasmania.

Material examined: *New South Wales* and *Australian Capital Territory*: Black Mountain, Canberra, in light trap, ix 1959 (*holotype* ♂, CSIRO), v ix x 1955–1960 (15 *paratypes* ♂, 17 ♀, CSIRO, 3 *paratypes* ♂, 5 ♀, AM), I. F. B. Common; Black Mountain, Canberra, ex blowfly trap x 1956 (7 *paratypes* ♂, 10 ♀, CSIRO), no collector's name; Mount Majura, Canberra, ix 1960 (*paratype* ♂, 1 ♀, CSIRO), D.H.C.; Mount Gingera, A.C.T., 5500 ft., i 1955 (*paratype* ♂, CSIRO), I. F. B. Common; Uriarra State Forest, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Sweetwater, Kain, near Braidwood, ix 1960 (*paratypes*, 2 ♂, CSIRO), D.H.C.; 18 miles SSE of Braidwood, x 1955 (*paratype* ♂, CSIRO), I. F. B. Common; 13 miles SE of Braidwood, x 1955 (*paratype* ♂, CSIRO), I. F. B. Common; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (*paratype* ♂, AM), D.K.M.; Paddy's River, near Marulan, ix 1956 (*paratype* ♂, 1 ♀, AM), D.K.M.; Gerogery, near Culcairn, x 1951 (*paratype* ♂, CSIRO), J. Calaby; The Creel, Snowy Mountains, xi 1961 (*paratype* ♂, 1 ♀, CSIRO), D.H.C. *Victoria*: Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (10 ♂, 2 ♀, AM), D.K.M.; 13 miles W of Matlock, iv 1963 (11 ♂, 13 ♀, AM), D.K.M.; Warburton, iv 1963 (3 ♂, 1 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (1 ♂, CSIRO), D.H.C., iv 1963 (3 ♂, 2 ♀, AM), D.K.M.; Mount Donna Buang,

near Warburton, iv 1963 (12 ♂, 10 ♀, AM), D.K.M.; Fernshaw, near Warburton, iv 1963 (1 ♂, 1 ♀, AM), D.K.M.; Black Spur (or Mount Dom Dom), near Healesville, ii x 1953–1961 (1 ♂, NMV), A. Neboiss, (2 ♂, CSIRO), D.H.C.; Kinglake, x 1953 (1 ♂, NMV), A. Neboiss; Nunawading, near Melbourne, iv 1957 (1 ♂, NMV), A. Neboiss; Melbourne, ix 1928 (1 ♂, NMV), F. E. Wilson; Lismore, viii 1953 (1 ♂, NMV), A. Neboiss; Branxholme, near Hamilton, viii 1953 (3 ♂, 2 ♀, NMV), A. Neboiss. *Tasmania*: near Russell Falls, Mount Field National Park, i 1960 (1 ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (1 ♂, AM), D.K.M.

Habitat: forest country.

As with *D. wirthi,* the specific identification of all females is doubtful, and no female paratypes are designated.

Diplogeomyza immaculata, sp. nov.

(Fig. 13)

♂ ♀. Head dull yellowish; frons suffused with brown, except on anterior margin; antennae brownish-yellow; palpi yellowish. Mesoscutum light reddish-brown, except for the pale yellowish lateral margins, a pair of darker brown longitudinal bands between the dorsocentrals, and two sublateral brown bands on each side which coalescence at the suture to form a single band on each side anteriorly; scutellum deep reddish-brown with a paler median stripe and apex; pleura light yellowish with a broad brown longitudinal stripe passing from humeral callus, across upper half of mesopleuron and of pteropleuron, and covering all of pleurotergite; mesopleuron with an additional brown mark on lower margin; sternopleuron unmarked. Legs yellowish; femora brownish at apices. Wings almost completely hyaline, with only posterior crossvein margined with brown. Abdomen yellowish-brown, with the posterior and lateral edges of tergites darker brown.

All *cheek bristles* reduced to small setulae; third antennal segment ovate; arista, plumose, the longer hairs longer than width of third antennal segment.

Scutellum with two pairs of bristles and numerous setulae which are finer and shorter than in *D. diaphora* and *D. spinosa;* sternopleuron with one upper bristle.

Male with surstylus (Fig. 13A) rather small, broadened basally, the distal part narrow and blunt at the apex; paramere (Fig. 13B) moderately short, curved backwards, blunt; aedeagus (Fig. 13C) short and very stout, the basiphallus represented by a pair of black, sclerotized plates which are fused anteriorly but free posteriorly where each bears a slender basal process which projects between parameres; distiphallus consisting of a broad flattened membranous bulb with some small, weak sclerites on distal surface; cerci about as long as surstyli.

Female postabdomen without spines on any tergites; segment 7 short with separate tergite and sternite; tergite 8 entire; cerci moderately short.

Dimensions: total length, ♂ 4·0–5·0 mm., ♀ 3·7–4·8 mm.; length of thorax, ♂ 2·6–3·1 mm., ♀ 2·5–3·0 mm.; length of wing, ♂ 4·9–5·8 mm., ♀ 4·9–5·5 mm.

Distribution: North Queensland.

Material examined: Barron River, at the Crater (or Mount Hypipamee), near Herberton, 3100 ft., i 1959 (*holotype* ♀, *paratype* ♂, AM), D.K.M. xii 1961 (*paratypes,* 4 ♂, 8 ♀, AM, 1 ♀, BM, 1 ♂, USNM), R. Lossin and D.K.M.

Habitat: stream margins in rain forest.

near Warburton, iv 1963 (12 ♂, 10 ♀, AM), D.K.M.; Fernshaw, near Warburton, iv 1963 (1 ♂, 1 ♀, AM), D.K.M.; Black Spur (or Mount Dom Dom), near Healesville, ii x 1953–1961 (1 ♂, NMV), A. Neboiss, (2 ♂, CSIRO), D.H.C.; Kinglake, x 1953 (1 ♂, NMV), A. Neboiss; Nunawading, near Melbourne, iv 1957 (1 ♂, NMV), A. Neboiss; Melbourne, ix 1928 (1 ♂, NMV), F. E. Wilson; Lismore, viii 1953 (1 ♂, NMV), A. Neboiss; Branxholme, near Hamilton, viii 1953 (3 ♂, 2 ♀, NMV), A. Neboiss. *Tasmania*: near Russell Falls, Mount Field National Park, i 1960 (1 ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (1 ♂, AM), D.K.M.

Habitat: forest country.

As with *D. wirthi,* the specific identification of all females is doubtful, and no female paratypes are designated.

Diplogeomyza immaculata, sp. nov.

(Fig. 13)

♂ ♀. Head dull yellowish; frons suffused with brown, except on anterior margin; antennae brownish-yellow; palpi yellowish. Mesoscutum light reddish-brown, except for the pale yellowish lateral margins, a pair of darker brown longitudinal bands between the dorsocentrals, and two sublateral brown bands on each side which coalescence at the suture to form a single band on each side anteriorly; scutellum deep reddish-brown with a paler median stripe and apex; pleura light yellowish with a broad brown longitudinal stripe passing from humeral callus, across upper half of mesopleuron and of pteropleuron, and covering all of pleurotergite; mesopleuron with an additional brown mark on lower margin; sternopleuron unmarked. Legs yellowish; femora brownish at apices. Wings almost completely hyaline, with only posterior crossvein margined with brown. Abdomen yellowish-brown, with the posterior and lateral edges of tergites darker brown.

All *cheek bristles* reduced to small setulae; third antennal segment ovate; arista, plumose, the longer hairs longer than width of third antennal segment.

Scutellum with two pairs of bristles and numerous setulae which are finer and shorter than in *D. diaphora* and *D. spinosa;* sternopleuron with one upper bristle.

Male with surstylus (Fig. 13A) rather small, broadened basally, the distal part narrow and blunt at the apex; paramere (Fig. 13B) moderately short, curved backwards, blunt; aedeagus (Fig. 13C) short and very stout, the basiphallus represented by a pair of black, sclerotized plates which are fused anteriorly but free posteriorly where each bears a slender basal process which projects between parameres; distiphallus consisting of a broad flattened membranous bulb with some small, weak sclerites on distal surface; cerci about as long as surstyli.

Female postabdomen without spines on any tergites; segment 7 short with separate tergite and sternite; tergite 8 entire; cerci moderately short.

Dimensions: total length, ♂ 4·0–5·0 mm., ♀ 3·7–4·8 mm.; length of thorax, ♂ 2·6–3·1 mm., ♀ 2·5–3·0 mm.; length of wing, ♂ 4·9–5·8 mm., ♀ 4·9–5·5 mm.

Distribution: North Queensland.

Material examined: Barron River, at the Crater (or Mount Hypipamee), near Herberton, 3100 ft., i 1959 (*holotype* ♀, *paratype* ♂, AM), D.K.M. xii 1961 (*paratypes,* 4 ♂, 8 ♀, AM, 1 ♀, BM, 1 ♂, USNM), R. Lossin and D.K.M.

Habitat: stream margins in rain forest.

Diplogeomyza hardyi, sp. nov.

This species is separated from all others of the genus by the short-haired arista and pattern of whitish spots on the mesoscutum. The long strap-shaped distiphallus with two longitudinal serrated ridges is unlike that of any other known species.

Distribution: New South Wales—principally tablelands; Victoria; Tasmania.

As far as can be ascertained at present, Tasmanian specimens show slight but consistent differences from mainland specimens in the structure of the male postabdomen, but no other differentiating characters have been found. There is no evidence that the distributions of the two forms overlap. It is possible that two distinct species are concerned but because it is not at present possible to test the decisive criteria the two forms are here called subspecies.

Diplogeomyza hardyi hardyi, subsp. nov.

(Fig. 14)

♂ ♀. Head yellowish; posterior part of frons brown; antennae and palpi black. Mesoscutum reddish brown with whitish lateral and anterior margins and a pattern of whitish spots, six in a circle surrounding first two pairs of dorsocentrals, one behind or surrounding each of the last pair of dorsocentrals, one behind each supra-alar, one at each basal corner and one at apex of scutellum; pleura dull yellowish variably suffused with brown, upper margin darker brown. Legs dull yellowish; fore femur and apices of other femora brown. Wings greyish hyaline with distinct dark grey markings as follows: apical spots on veins 1 to 4, that on vein 4 elongate, a spot at fork of veins 2 and 3 and one at base of discal cell, a mark along anterior cross-vein, and another along posterior cross-vein. Abdomen brown.

Fronto-orbital bristles situated rather close together near middle of frons, the anterior one distinctly shorter; arista with short hairs up to twice as long as its basal diameter.

Thorax with four dorsocentrals, no acrostichals, four scutellars, one sternopleural; setulae on mesoscutum and scutellum somewhat finer than in other species.

Male abdomen with tergite 6 distinctly sclerotized, usually bare, though sometimes distinctly setulose. Lateral lobe of tergite 9 produced downwards in front of base of surstylus; surstylus (Fig. 14A) with broad, posteriorly extended basal part and narrow distal part, rather obtuse at apex and with several long setulæ on outer surface of basal half; paramere (Fig. 14B) very short, ear-shaped, not as long as wide; basiphallus elongate, well sclerotized, somewhat dilated distally where it extends posteriorly into a broadly rounded, bilaterally compressed epiphallus; distiphallus longer than basiphallus, strap shaped, tapered at apex, contracted at base with a double pigmented strip along each margin and two serrated longitudinal submedian ridges, the serrations especially pronounced on the basal half; cerci about as long as surstyli.

Female without spines on postabdominal tergites; segment 7 longer than other segments.

Dimensions: total length, ♂ 3·4–5·5 mm., ♀ 3·4–5·6 mm.; length of thorax, ♂ 2·0–3·0 mm., ♀ 1·8–3·0 mm.; length of wing, ♂ 4·4–6·0 mm., ♀ 4·0–6·0 mm.

Distribution: New South Wales (principally tablelands); Victoria.

Diplogeomyza hardyi, sp. nov.

This species is separated from all others of the genus by the short-haired arista and pattern of whitish spots on the mesoscutum. The long strap-shaped distiphallus with two longitudinal serrated ridges is unlike that of any other known species.

Distribution: New South Wales—principally tablelands; Victoria; Tasmania.

As far as can be ascertained at present, Tasmanian specimens show slight but consistent differences from mainland specimens in the structure of the male postabdomen, but no other differentiating characters have been found. There is no evidence that the distributions of the two forms overlap. It is possible that two distinct species are concerned but because it is not at present possible to test the decisive criteria the two forms are here called subspecies.

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(Fig. 14)

♂ ♀. Head yellowish; posterior part of frons brown; antennae and palpi black. Mesoscutum reddish brown with whitish lateral and anterior margins and a pattern of whitish spots, six in a circle surrounding first two pairs of dorsocentrals, one behind or surrounding each of the last pair of dorsocentrals, one behind each supra-alar, one at each basal corner and one at apex of scutellum; pleura dull yellowish variably suffused with brown, upper margin darker brown. Legs dull yellowish; fore femur and apices of other femora brown. Wings greyish hyaline with distinct dark grey markings as follows: apical spots on veins 1 to 4, that on vein 4 elongate, a spot at fork of veins 2 and 3 and one at base of discal cell, a mark along anterior cross-vein, and another along posterior cross-vein. Abdomen brown.

Fronto-orbital bristles situated rather close together near middle of frons, the anterior one distinctly shorter; arista with short hairs up to twice as long as its basal diameter.

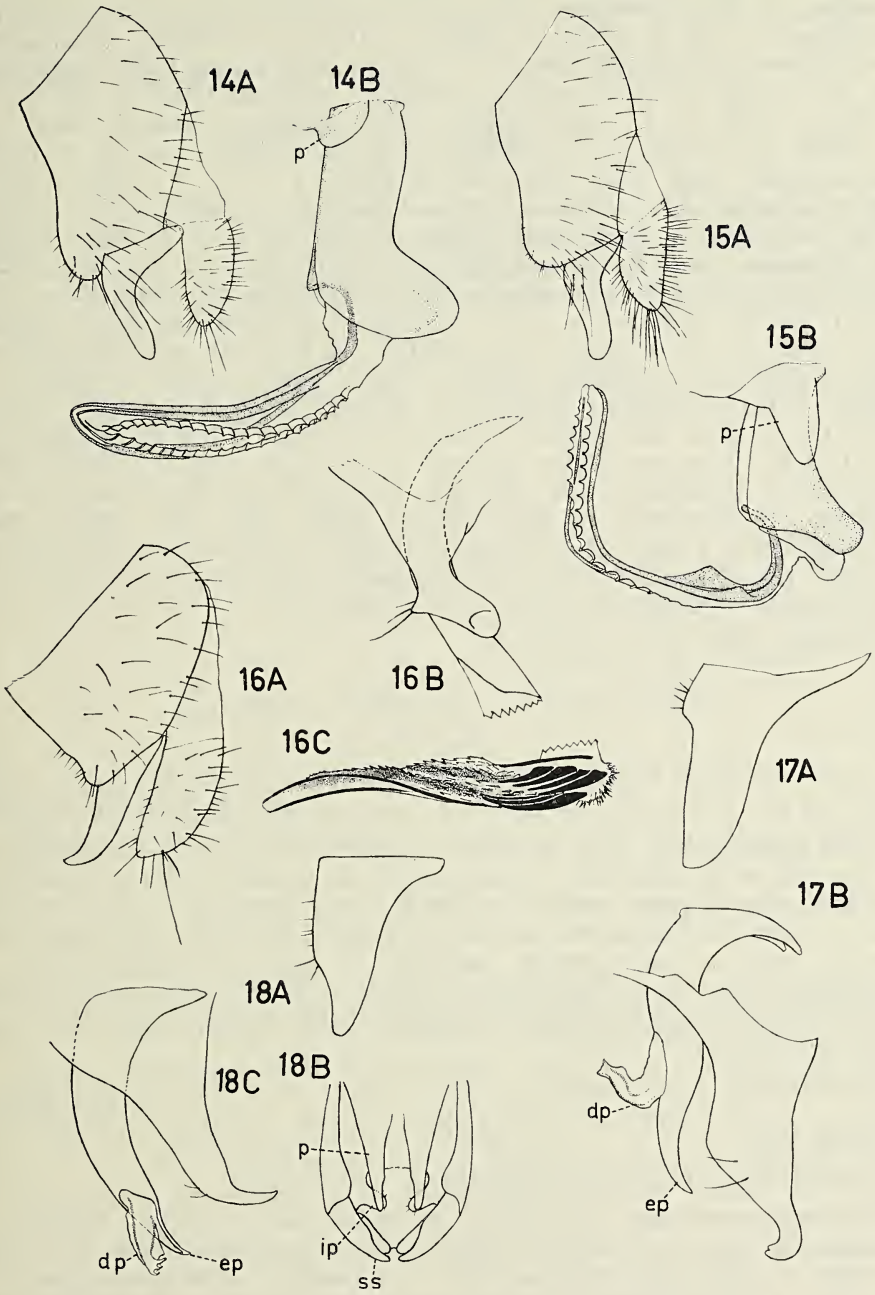
Thorax with four dorsocentrals, no acrostichals, four scutellars, one sternopleural; setulae on mesoscutum and scutellum somewhat finer than in other species.

Male abdomen with tergite 6 distinctly sclerotized, usually bare, though sometimes distinctly setulose. Lateral lobe of tergite 9 produced downwards in front of base of surstylus; surstylus (Fig. 14A) with broad, posteriorly extended basal part and narrow distal part, rather obtuse at apex and with several long setulæ on outer surface of basal half; paramere (Fig. 14B) very short, ear-shaped, not as long as wide; basiphallus elongate, well sclerotized, somewhat dilated distally where it extends posteriorly into a broadly rounded, bilaterally compressed epiphallus; distiphallus longer than basiphallus, strap shaped, tapered at apex, contracted at base with a double pigmented strip along each margin and two serrated longitudinal submedian ridges, the serrations especially pronounced on the basal half; cerci about as long as surstyli.

Female without spines on postabdominal tergites; segment 7 longer than other segments.

Dimensions: total length, ♂ 3·4–5·5 mm., ♀ 3·4–5·6 mm.; length of thorax, ♂ 2·0–3·0 mm., ♀ 1·8–3·0 mm.; length of wing, ♂ 4·4–6·0 mm., ♀ 4·0–6·0 mm.

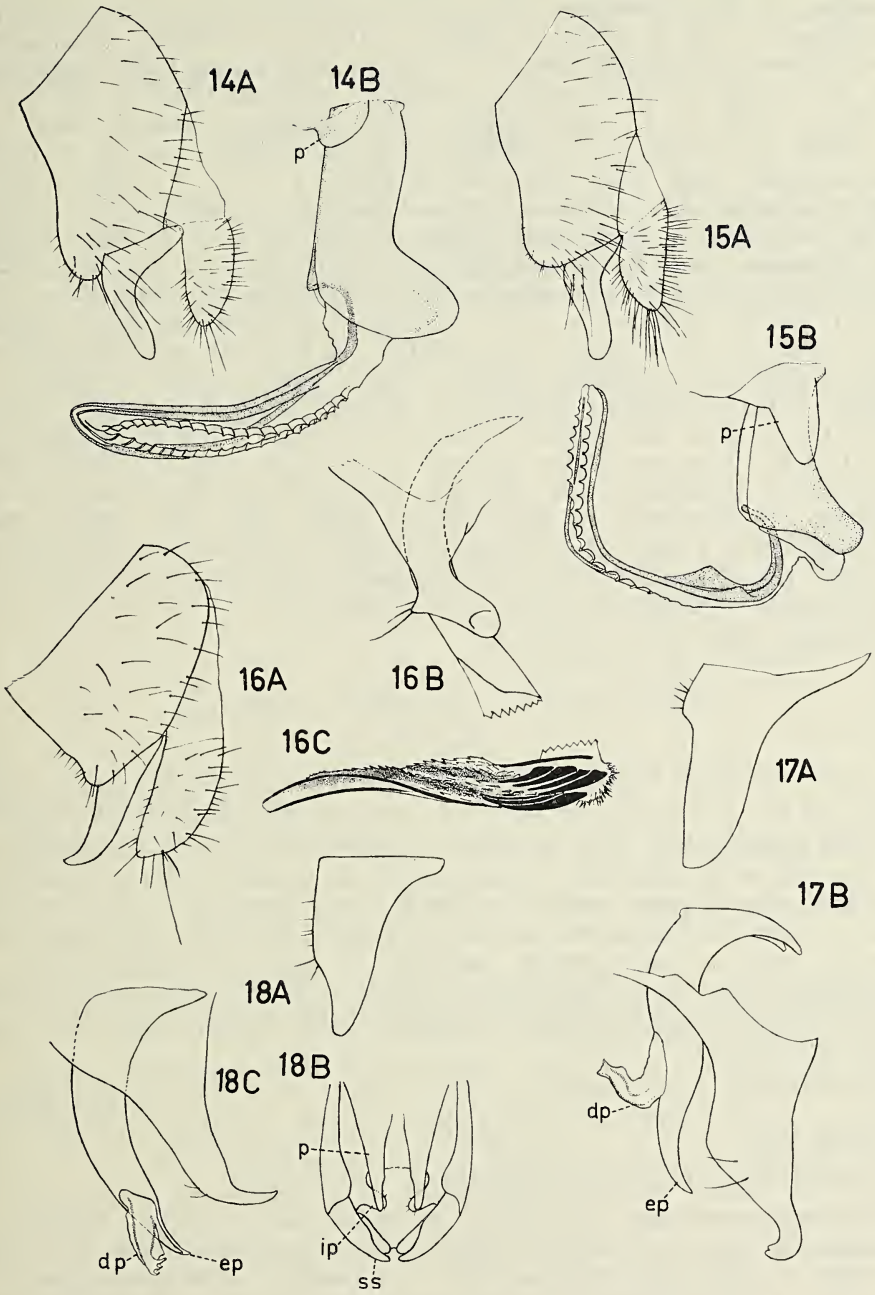
Distribution: New South Wales (principally tablelands); Victoria.



Figs 14–18

14, *Diplogeomyza hardyi hardyi*, subsp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere and aedeagus; 15, *Diplogeomyza hardyi tasmanica*, subsp. nov., paratype, Pieman River. A, epandrium. B, left paramere and aedeagus; 16, *Diplogeomyza flavipalpis*, sp. nov., holotype. A, epandrium. B, left paramere and basiphallus. C, distiphallus; 17, *Diplogeomyza diaphora* Hendel, Mount Wilson. A, left surstylus. B, left paramere and aedeagus; 18, *Diplogeomyza tridens*, sp. nov., paratype, Binna Burra. A, left surstylus. B, anterior aspect of epandrium. C, left paramere and aedeagus.

dp, distiphallus; ep, epiphallus; ip, internal process of epandrium; p, paramere; ss, surstylus.



Figs 14–18

14, *Diplogeomyza hardyi hardyi*, subsp. nov., paratype, Mount Wilson. A, epandrium. B, left paramere and aedeagus; 15, *Diplogeomyza hardyi tasmanica*, subsp. nov., paratype, Pieman River. A, epandrium. B, left paramere and aedeagus; 16, *Diplogeomyza flavipalpis*, sp. nov., holotype. A, epandrium. B, left paramere and basiphallus. C, distiphallus; 17, *Diplogeomyza diaphora* Hendel, Mount Wilson. A, left surstylus. B, left paramere and aedeagus; 18, *Diplogeomyza tridens*, sp. nov., paratype, Binna Burra. A, left surstylus. B, anterior aspect of epandrium. C, left paramere and aedeagus.

dp, distiphallus; ep, epiphallus; ip, internal process of epandrium; p, paramere; ss, surstylus.

Material examined: *New South Wales and Australian Capital Territory*: Katoomba, v 1959 (*holotype* ♂), iv v vi vii viii ix x xi xii 1955-1959 (*paratypes,* 2 ♂, 14 ♀, AM, 2 ♀, BM, 2 ♀, DEI, 2 ♀, USNM) G. H. Hardy; Mount Wilson, Blue Mountains, iii v vi vii ix x xi xii 1957-1964 (*paratypes,* 41 ♂, 35 ♀, AM), D.K.M.; Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (2 ♂, AM), D.K.M.; New England National Park, near Ebor, 4000 ft., xi 1961 (1 ♂, CSIRO), I. F. B. Common and M. S. Upton; Point Lookout, near Ebor, 5000 ft., iii 1960 (1 ♂, 2 ♀, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (3 ♂, 3 ♀, AM), D.K.M.; Minnamurra Falls, near Kiama, x 1961 (1 ♂, 1 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (3 ♂, 2 ♀, AM), D.K.M.; Rutherford Creek, Brown Mountain, near Nimmitabel, iii 1961 (3 ♂, 3 ♀, CSIRO), D.H.C.; Blundell's, A.C.T., x 1930 (1 ♀, CSIRO), H. M. Barnes; Coree Creek, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Uriarra State Forest, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Cotter River, A.C.T., xi 1960 (1 ♂, CSIRO), D.H.C. *Victoria*: Warburton, iv 1963 (2 ♂, 2 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (1 ♂, CSIRO), D.H.C., iv 1963 (1 ♂, AM), D.K.M.; Ferntree Gully, iv 1963 (1 ♀, AM), D.K.M.; Yarra River, 9 miles E of Warburton, iv 1963 (2 ♂, AM), D.K.M.; Fernshaw, near Healesville, iv 1963 (2 ♀, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (1 ♂, CSIRO), D.H.C.; Gunyah, near Foster, ii iii 1955–1957 (2 ♀, CSIRO), G. F. Bornemissza; Upper Buckland River, near Mount Buffalo, xi 1964 (1 ♀, NMV), A. Neboiss.

Habitat: principally wet forests.

Diplogeomyza hardyi tasmanica, subsp. nov.

(Fig. 15)

♂ ♀. *Coloration* darker than in New South Wales specimens of *D. hardyi hardyi,* but not consistently darker than Victorian specimens of that subspecies.

Male postabdomen (Fig. 15A, B) as described for *D. hardyi hardyi* but with the following differences: surstylus not so broadly extended posteriorly (this character slightly variable in both forms); lateral lobe of tergite 9 scarcely produced downwards in front of base of surstylus; paramere about twice as long as basal width, rounded at apex; submedian strips on distiphallus very weakly sclerotized basally, the serrations much weaker, almost obsolete basally, where the lateral strips are expanded into a pair of narrow auricles.

Dimensions: total length, ♂ 4·4–5·1 mm., ♀ 4·0–5·1 mm.; length of thorax, ♂ 2·1–2·9 mm., ♀ 2·3–2·7 mm.; length of wing, ♂ 4·5–6·0 mm., ♀ 4·9–5·9 mm.

Distribution: Tasmania—probably in all districts.

Material examined: Arve River, near Geeveston, i 1960 (*holotype* ♂, *paratypes,* 3 ♂, 4 ♀, AM), D.K.M.; Hartz Mountains, 800 ft., i 1960 (*paratype* ♀, AM), D.K.M.; Ferntree, near Hobart, i 1960 (*paratypes,* 3 ♂, 4 ♀, AM, 3 ♂, USNM), D.K.M.; near Russell Falls, Mt. Field National Park, i 1960 (*paratype* ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (*paratypes,* 3 ♂, AM), D.K.M.; Arthur Plains, South-west District, ii 1965 (1 ♀, NMV), A. Neboiss; Lake Saint Clair, i 1960 (*paratypes,* 2 ♂, AM), D.K.M.; Renison Bell, i 1960 (*paratype* ♀, AM), D.K.M.; 13 miles NW of Queenstown, i 1945 (*paratype* ♂, CSIRO), K. H. L. Key, P. B. Carne, and R. W. Kerr; Pieman River, near Rosebery, i 1960 (*paratypes,* 2 ♂, 1 ♀, AM, 2 ♂, BM), D.K.M.; Waldheim, near Cradle Mountain, 2850 ft., i 1960 (*paratype* ♀, AM), D.K.M.; Marakoopa Caves, near Mole Creek, i 1960 (*paratypes,* 1 ♂, 1 ♀,

Material examined: *New South Wales and Australian Capital Territory*: Katoomba, v 1959 (*holotype* ♂), iv v vi vii viii ix x xi xii 1955-1959 (*paratypes,* 2 ♂, 14 ♀, AM, 2 ♀, BM, 2 ♀, DEI, 2 ♀, USNM) G. H. Hardy; Mount Wilson, Blue Mountains, iii v vi vii ix x xi xii 1957-1964 (*paratypes,* 41 ♂, 35 ♀, AM), D.K.M.; Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (2 ♂, AM), D.K.M.; New England National Park, near Ebor, 4000 ft., xi 1961 (1 ♂, CSIRO), I. F. B. Common and M. S. Upton; Point Lookout, near Ebor, 5000 ft., iii 1960 (1 ♂, 2 ♀, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (3 ♂, 3 ♀, AM), D.K.M.; Minnamurra Falls, near Kiama, x 1961 (1 ♂, 1 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (3 ♂, 2 ♀, AM), D.K.M.; Rutherford Creek, Brown Mountain, near Nimmitabel, iii 1961 (3 ♂, 3 ♀, CSIRO), D.H.C.; Blundell's, A.C.T., x 1930 (1 ♀, CSIRO), H. M. Barnes; Coree Creek, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Uriarra State Forest, A.C.T., x 1960 (1 ♀, CSIRO), D.H.C.; Cotter River, A.C.T., xi 1960 (1 ♂, CSIRO), D.H.C. *Victoria*: Warburton, iv 1963 (2 ♂, 2 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (1 ♂, CSIRO), D.H.C., iv 1963 (1 ♂, AM), D.K.M.; Ferntree Gully, iv 1963 (1 ♀, AM), D.K.M.; Yarra River, 9 miles E of Warburton, iv 1963 (2 ♂, AM), D.K.M.; Fernshaw, near Healesville, iv 1963 (2 ♀, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (1 ♂, CSIRO), D.H.C.; Gunyah, near Foster, ii iii 1955–1957 (2 ♀, CSIRO), G. F. Bornemissza; Upper Buckland River, near Mount Buffalo, xi 1964 (1 ♀, NMV), A. Neboiss.

Habitat: principally wet forests.

Diplogeomyza hardyi tasmanica, subsp. nov.

(Fig. 15)

♂ ♀. *Coloration* darker than in New South Wales specimens of *D. hardyi hardyi,* but not consistently darker than Victorian specimens of that subspecies.

Male postabdomen (Fig. 15A, B) as described for *D. hardyi hardyi* but with the following differences: surstylus not so broadly extended posteriorly (this character slightly variable in both forms); lateral lobe of tergite 9 scarcely produced downwards in front of base of surstylus; paramere about twice as long as basal width, rounded at apex; submedian strips on distiphallus very weakly sclerotized basally, the serrations much weaker, almost obsolete basally, where the lateral strips are expanded into a pair of narrow auricles.

Dimensions: total length, ♂ 4·4–5·1 mm., ♀ 4·0–5·1 mm.; length of thorax, ♂ 2·1–2·9 mm., ♀ 2·3–2·7 mm.; length of wing, ♂ 4·5–6·0 mm., ♀ 4·9–5·9 mm.

Distribution: Tasmania—probably in all districts.

Material examined: Arve River, near Geeveston, i 1960 (*holotype* ♂, *paratypes,* 3 ♂, 4 ♀, AM), D.K.M.; Hartz Mountains, 800 ft., i 1960 (*paratype* ♀, AM), D.K.M.; Ferntree, near Hobart, i 1960 (*paratypes,* 3 ♂, 4 ♀, AM, 3 ♂, USNM), D.K.M.; near Russell Falls, Mt. Field National Park, i 1960 (*paratype* ♂, AM), D.K.M.; Eaglehawk Neck, i 1960 (*paratypes,* 3 ♂, AM), D.K.M.; Arthur Plains, South-west District, ii 1965 (1 ♀, NMV), A. Neboiss; Lake Saint Clair, i 1960 (*paratypes,* 2 ♂, AM), D.K.M.; Renison Bell, i 1960 (*paratype* ♀, AM), D.K.M.; 13 miles NW of Queenstown, i 1945 (*paratype* ♂, CSIRO), K. H. L. Key, P. B. Carne, and R. W. Kerr; Pieman River, near Rosebery, i 1960 (*paratypes,* 2 ♂, 1 ♀, AM, 2 ♂, BM), D.K.M.; Waldheim, near Cradle Mountain, 2850 ft., i 1960 (*paratype* ♀, AM), D.K.M.; Marakoopa Caves, near Mole Creek, i 1960 (*paratypes,* 1 ♂, 1 ♀,

AM), D.K.M.; Western Tiers, Lake Highway, 2250 ft., i 1960 (*paratype* ♂, AM), D.K.M.; Mount Barrow, near Launceston, 3000 ft., i 1960 (*paratype* ♀, AM), D.K.M.

Habitat: principally wet forests.

Diplogeomyza flavipalpis, sp. nov.

(Fig. 16)

♂ ♀. *Coloration* as described for *D. victoriae* below except as here indicated. Palpi testaceous-yellow. Mesoscutum with a median brownish stripe, sometimes indistinct; the submedian yellow-dusted stripes tending to fuse medially so as to obscure the darker median stripe. Halteres pale-yellowish. Abdomen yellow-brown.

Structure of head and thorax as described below for *D. spinosa,* except that the arista is shorter-haired, only two or three dorsal hairs as long as or slightly longer than half the width of third antennal segment, the other hairs notably shorter.

Male with surstylus (Fig. 16A) directed obliquely forward from base, rather narrow, the acute apex curved forward, inner surface setulose; paramere (Fig. 16B) much longer than surstylus, bent backward beyond middle, at the bend an anterior gibbosity with a horizontal row of three or four setulae, the apex rounded with a recurved tooth on outer surface; basiphallus forming an elongate curved tube, without epiphallus; distiphallus (Fig. 16C) joined to anterior surface of basiphallus, strap shaped, with a narrow smooth black strip along each margin, anterior surface hispid, particularly so along the two submarginal ridges, which run for its full length and are each armed with three or four long strong black spines basally; cerci shorter than surstyli, with rather short setulae, one of the subapical ones notably longer.

Abdomen of female with segment 7 elongate, much as in *D. diaphora* and *D. tridens.*

Dimensions: total length, ♂ 3·5 mm., ♀ 3·6–4·0 mm.; length of thorax, ♂ 2·0 mm., ♀ 2·1 mm.; length of wing, ♂ 4·0 mm., ♀ 4·6–4·7 mm.

Distribution: New South Wales—Blue Mountains.

Material examined: Mount Boyce, near Blackheath, iv 1964 (*holotype* ♂, *paratype* ♀, AM), D.K.M.; Mount Wilson, v 1958 (*paratype* ♀, AM), D.K.M.

Habitat: specimens from Mount Boyce taken in dry sclerophyll forest at top of ridge.

In spite of its similarity in colouring to *D. victoriae,* this species is evidently more closely related to *hardyi, diaphora,* and *tridens* which have a similarly elongate segment 7 in the female abdomen. Within this group it resembles *D. hardyi* most closely in having a strap like aedeagus with longitudinal skeletal strips, and the aristal hairs shorter than in the other species. The paramere is, however, well developed and resembles that of *D. diaphora* in its hooked apex and group of anterior setulae.

Diplogeomyza diaphora Hendel

(Fig. 17)

Diplogeomyza diaphora Hendel, 1917: 38–39.

♂ ♀. Very similar to *D. tridens* (see below) in most characters, differing in the darker colouring on the femora and in the structure of the postabdomen of both sexes.

AM), D.K.M.; Western Tiers, Lake Highway, 2250 ft., i 1960 (*paratype* ♂, AM), D.K.M.; Mount Barrow, near Launceston, 3000 ft., i 1960 (*paratype* ♀, AM), D.K.M.

Habitat: principally wet forests.

Diplogeomyza flavipalpis, sp. nov.

(Fig. 16)

♂ ♀. *Coloration* as described for *D. victoriae* below except as here indicated. Palpi testaceous-yellow. Mesoscutum with a median brownish stripe, sometimes indistinct; the submedian yellow-dusted stripes tending to fuse medially so as to obscure the darker median stripe. Halteres pale-yellowish. Abdomen yellow-brown.

Structure of head and thorax as described below for *D. spinosa,* except that the arista is shorter-haired, only two or three dorsal hairs as long as or slightly longer than half the width of third antennal segment, the other hairs notably shorter.

Male with surstylus (Fig. 16A) directed obliquely forward from base, rather narrow, the acute apex curved forward, inner surface setulose; paramere (Fig. 16B) much longer than surstylus, bent backward beyond middle, at the bend an anterior gibbosity with a horizontal row of three or four setulae, the apex rounded with a recurved tooth on outer surface; basiphallus forming an elongate curved tube, without epiphallus; distiphallus (Fig. 16C) joined to anterior surface of basiphallus, strap shaped, with a narrow smooth black strip along each margin, anterior surface hispid, particularly so along the two submarginal ridges, which run for its full length and are each armed with three or four long strong black spines basally; cerci shorter than surstyli, with rather short setulae, one of the subapical ones notably longer.

Abdomen of female with segment 7 elongate, much as in *D. diaphora* and *D. tridens.*

Dimensions: total length, ♂ 3·5 mm., ♀ 3·6–4·0 mm.; length of thorax, ♂ 2·0 mm., ♀ 2·1 mm.; length of wing, ♂ 4·0 mm., ♀ 4·6–4·7 mm.

Distribution: New South Wales—Blue Mountains.

Material examined: Mount Boyce, near Blackheath, iv 1964 (*holotype* ♂, *paratype* ♀, AM), D.K.M.; Mount Wilson, v 1958 (*paratype* ♀, AM), D.K.M.

Habitat: specimens from Mount Boyce taken in dry sclerophyll forest at top of ridge.

In spite of its similarity in colouring to *D. victoriae,* this species is evidently more closely related to *hardyi, diaphora,* and *tridens* which have a similarly elongate segment 7 in the female abdomen. Within this group it resembles *D. hardyi* most closely in having a strap like aedeagus with longitudinal skeletal strips, and the aristal hairs shorter than in the other species. The paramere is, however, well developed and resembles that of *D. diaphora* in its hooked apex and group of anterior setulae.

Diplogeomyza diaphora Hendel

(Fig. 17)

Diplogeomyza diaphora Hendel, 1917: 38–39.

♂ ♀. Very similar to *D. tridens* (see below) in most characters, differing in the darker colouring on the femora and in the structure of the postabdomen of both sexes.

Legs dull yellowish; fore femur greyish brown on distal three quarters or more; middle femur brown at apex; hind femur broadly dark-brown to black at apex; tibiae brownish basally.

Male with surstylus (Fig. 17A) broadened basally, narrowed beyond base and acute at apex, a prominence bearing some small hairs on anterior side near base; inner surface of epandrium without processes; paramere (Fig. 17B) elongate, tapering, with a group of two or three fine erect hairs on anterior side well before apex, the apex slightly swollen and curved forwards with two short teeth; basiphallus rather short; distiphallus membranous, arising from anterior surface of basiphallus, with two weak longitudinal sclerotized strips; epiphallus long, curved, heavily sclerotized.

Female postabdomen very similar to that of *D. tridens* but differing as follows: sternite 6 slightly narrowed medially; posterior margin of segment 7 convexly curved; segment 8 comparatively short, the sternite consisting of two short, oval sclerites.

Distribution: *Southern Queensland*—tablelands; *New South Wales*—coast to tablelands and south western slopes; *Victoria* (*holotype*—no further locality stated); *Tasmania*—generally distributed; *South Australia*—near Adelaide.

Material examined (localities only given): *Queensland*: Bunya Mountains (AM); Binna Burra, Lamington National Park (AM, UQ). *New South Wales*: Mount Gibraltar National Park, 64 miles W of Grafton (AM); Dorrigo National Park (AM); Point Lookout and Wright's Lookout, New England National Park (AM); Tubrabucca, near Barrington Tops (AM); Eccleston, Allyn River (SPHTM); Goulburn River, near Baerami (AM); Narrabeen, near Sydney (SPHTM); Mooney Mooney Creek, near Gosford (AM); Mount Wilson, Blue Mountains (AM, CSIRO, BM, DEI); below Govett's Leap, Blue Mountains (AM); Katoomba (AM); Wentworth Falls (AM, BM); Springwood (AM); Royal National Park (AM); Otford, Illawarra District (AM); Mount Keira, near Wollongong (CSIRO); Colo Vale, near Mittagong (AM, USNM); Minnamurra Falls, near Kiama (AM); Clyde Mountain, near Braidwood (AM); Sweetwater, Kain, near Braidwood (CSIRO); Rutherford Creek, Brown Mountain, near Nimmitabel (CSIRO); Geehi River, Snowy Mountains (CSIRO); Gerogery, near Culcairn (CSIRO). *Victoria*: Nowa Nowa (CSIRO); Stratford (CSIRO); Bright (CSIRO); 13 miles W of Matlock (AM); Ferntree Gully (AM); Warburton (AM); Cement Creek, near Warburton (AM); Fernshaw, near Healesville (AM); Mount Dom Dom (Black Spur), near Healesville (CSIRO); Belgrave (AM); Eltham, near Melbourne (UQ). *Tasmania*: 2 miles east of Tonganah, near Scottsdale (AM); Pieman River, near Rosebery (AM); Renison Bell (AM); Franklin River crossing, Lyell Highway (AM); Arve River, near Geeveston (AM); Hartz Mountains, 800 ft. (AM). *South Australia*: Belair, near Adelaide (SAM).

Habitat: forest country.

Diplogeomyza tridens, sp. nov.

(Figs. 18, 30)

♂ ♀. Head dull yellowish; frons suffused with brown; palpi brown; antennae yellowish-brown. Mesoscutum deep reddish-brown with pale yellowish lateral margins, a median light greyish longitudinal stripe, and one pair of such stripes just inside and one just outside dorsocentral lines; scutellum deep brown with paler margins; pleura dull yellowish with a broad brown band on upper part; sternopleuron variably suffused with

Legs dull yellowish; fore femur greyish brown on distal three quarters or more; middle femur brown at apex; hind femur broadly dark-brown to black at apex; tibiae brownish basally.

Male with surstylus (Fig. 17A) broadened basally, narrowed beyond base and acute at apex, a prominence bearing some small hairs on anterior side near base; inner surface of epandrium without processes; paramere (Fig. 17B) elongate, tapering, with a group of two or three fine erect hairs on anterior side well before apex, the apex slightly swollen and curved forwards with two short teeth; basiphallus rather short; distiphallus membranous, arising from anterior surface of basiphallus, with two weak longitudinal sclerotized strips; epiphallus long, curved, heavily sclerotized.

Female postabdomen very similar to that of *D. tridens* but differing as follows: sternite 6 slightly narrowed medially; posterior margin of segment 7 convexly curved; segment 8 comparatively short, the sternite consisting of two short, oval sclerites.

Distribution: *Southern Queensland*—tablelands; *New South Wales*—coast to tablelands and south western slopes; *Victoria* (*holotype*—no further locality stated); *Tasmania*—generally distributed; *South Australia*—near Adelaide.

Material examined (localities only given): *Queensland*: Bunya Mountains (AM); Binna Burra, Lamington National Park (AM, UQ). *New South Wales*: Mount Gibraltar National Park, 64 miles W of Grafton (AM); Dorrigo National Park (AM); Point Lookout and Wright's Lookout, New England National Park (AM); Tubrabucca, near Barrington Tops (AM); Eccleston, Allyn River (SPHTM); Goulburn River, near Baerami (AM); Narrabeen, near Sydney (SPHTM); Mooney Mooney Creek, near Gosford (AM); Mount Wilson, Blue Mountains (AM, CSIRO, BM, DEI); below Govett's Leap, Blue Mountains (AM); Katoomba (AM); Wentworth Falls (AM, BM); Springwood (AM); Royal National Park (AM); Otford, Illawarra District (AM); Mount Keira, near Wollongong (CSIRO); Colo Vale, near Mittagong (AM, USNM); Minnamurra Falls, near Kiama (AM); Clyde Mountain, near Braidwood (AM); Sweetwater, Kain, near Braidwood (CSIRO); Rutherford Creek, Brown Mountain, near Nimmitabel (CSIRO); Geehi River, Snowy Mountains (CSIRO); Gerogery, near Culcairn (CSIRO). *Victoria*: Nowa Nowa (CSIRO); Stratford (CSIRO); Bright (CSIRO); 13 miles W of Matlock (AM); Ferntree Gully (AM); Warburton (AM); Cement Creek, near Warburton (AM); Fernshaw, near Healesville (AM); Mount Dom Dom (Black Spur), near Healesville (CSIRO); Belgrave (AM); Eltham, near Melbourne (UQ). *Tasmania*: 2 miles east of Tonganah, near Scottsdale (AM); Pieman River, near Rosebery (AM); Renison Bell (AM); Franklin River crossing, Lyell Highway (AM); Arve River, near Geeveston (AM); Hartz Mountains, 800 ft. (AM). *South Australia*: Belair, near Adelaide (SAM).

Habitat: forest country.

Diplogeomyza tridens, sp. nov.

(Figs. 18, 30)

♂ ♀. Head dull yellowish; frons suffused with brown; palpi brown; antennae yellowish-brown. Mesoscutum deep reddish-brown with pale yellowish lateral margins, a median light greyish longitudinal stripe, and one pair of such stripes just inside and one just outside dorsocentral lines; scutellum deep brown with paler margins; pleura dull yellowish with a broad brown band on upper part; sternopleuron variably suffused with

light-brown. Legs dull yellowish; fore femur gradually becoming brownish towards apex; middle femur at most indistinctly brownish at apex; hind femur usually slightly browned at extreme apex. Wing brownish-hyaline with darker marks on anterior and posterior cross-veins and faint brown spots at apices of veins 2, 3, and 4. Abdomen yellowish-brown, the distal edge of the tergites usually darker.

Anterior cheek bristles numerous, rather coarse; third antennal segment ovate; arista plumose, the longer hairs as long as or longer than width of third antennal segment.

Scutellum with numerous rather fine setulae, two pairs of long marginal bristles, and two pairs of shorter bristles, one basal, and one intermediate, sometimes one or more of the short bristles duplicated; sternopleuron with one upper bristle.

Male postabdomen with surstylus (Fig. 18A) somewhat elongate, broadened basally, the apex obtuse or subacute, a prominence on anterior side shortly beyond middle; inner surface of epandrium (Fig. 18B) with a pair of blunt processes projecting inwards behind parameres; paramere (Fig. 18C) elongate, the distal part long-acuminate and curved backwards; aedeagus with long tubular sclerotized basiphallus which terminates distally in a short, curved epiphallus (spinus), the membranous distiphallus arising from left side of basiphallus, with a pair of weak sclerotized longitudinal strips and three fine, sharp terminal teeth; cerci not as long as surstyli.

Female abdomen with segment 6 short; sternite 6 slightly wider than preceding sternites, not narrowed medially; segment 7 elongate, conical, posterior margin of sternite 7 straight; segment 8 also rather elongate, retractile within the segment 7, both tergite and sternite divided longitudinally, the sternite consisting of two quite narrow plates; tergite 9 and sternite 9 entire; cerci slender.

Dimensions: total length, ♂ 3·8–5·0 mm., ♀ 3·4–5·7 mm.; length of thorax, ♂ 2·2–3·0 mm., ♀ 2·0–3·2 mm.; length of wing, ♂ 3·6–5·2 mm., ♀ 3·9–5·5 mm.

Distribution: *Queensland*—as far north as Atherton Tableland; *New South Wales*—coast district, extending to tablelands only in the north.

Material examined: *Queensland*: Binna Burra, Lamington National Park, i 1961 (*holotype* ♂, *paratypes*, 4 ♂, 4 ♀, AM), ii 1961 (*paratypes*, 2 ♂, QM), D.K.M.; Lamington National Park, x 1957 (*paratype* ♀, UQ), I. C. Yeo; Tamborine Mountain, ii xii 1961 (*paratypes*, 2 ♂, 4 ♀, BM, 11 ♂, 14 ♀, AM), D.K.M.; Mount Glorious, near Brisbane, i 1961 (*paratypes*, 2 ♂, AM), D.K.M.; Summer Creek, Little Yabba Forestry Road, near Kenilworth, ii 1961 (*paratypes*, 8 ♂, 12 ♀, AM), D.K.M.; Mapleton, ii 1961 (*paratype* ♀, AM), D.K.M.; The Crater, Mount Hypipamee, near Herberton, xii 1961 (2 ♂, 2 ♀, AM), D.K.M. *New South Wales*: Huonbrook, near Mullumbimby, i xii 1961 (*paratypes* 1 ♀, AM, 1 ♀, USNM), D.K.M.; Bruxner Park, near Coffs Harbour, i 1961 (*paratype* ♂, AM), D.K.M.; Dorrigo, no date (*paratype* ♂, SAM), W. Heron; Dorrigo National Park, i 1961 (*paratypes*, 4 ♀, AM), D.K.M.; Upper Allyn, near Eccleston, 1000 ft., xi 1965 (1 ♂, 1 ♀, AM), D.K.M.; Upper Allyn River, 1500 ft., xi 1960 (1 ♀, CSIRO), I. F. B. Common and M. S. Upton; Palm Grove, near Wyong, vii 1961 (1 ♂, AM), D.K.M.; Royal National Park, near Sydney, i iv vi viii ix x xi xii 1956–1965 (2 ♂, 1 ♀, BM, 1 ♂, 1 ♀, USNM, 6 ♂, 10 ♀, AM), D.K.M.; Otford, Illawarra District, i ii iii x 1961–1965 (1 ♂, 1 ♀, CSIRO, 4 ♂, 5 ♀, AM), D.K.M.

Habitat: principally rain-forest.

light-brown. Legs dull yellowish; fore femur gradually becoming brownish towards apex; middle femur at most indistinctly brownish at apex; hind femur usually slightly browned at extreme apex. Wing brownish-hyaline with darker marks on anterior and posterior cross-veins and faint brown spots at apices of veins 2, 3, and 4. Abdomen yellowish-brown, the distal edge of the tergites usually darker.

Anterior cheek bristles numerous, rather coarse; third antennal segment ovate; arista plumose, the longer hairs as long as or longer than width of third antennal segment.

Scutellum with numerous rather fine setulae, two pairs of long marginal bristles, and two pairs of shorter bristles, one basal, and one intermediate, sometimes one or more of the short bristles duplicated; sternopleuron with one upper bristle.

Male postabdomen with surstylus (Fig. 18A) somewhat elongate, broadened basally, the apex obtuse or subacute, a prominence on anterior side shortly beyond middle; inner surface of epandrium (Fig. 18B) with a pair of blunt processes projecting inwards behind parameres; paramere (Fig. 18C) elongate, the distal part long-acuminate and curved backwards; aedeagus with long tubular sclerotized basiphallus which terminates distally in a short, curved epiphallus (spinus), the membranous distiphallus arising from left side of basiphallus, with a pair of weak sclerotized longitudinal strips and three fine, sharp terminal teeth; cerci not as long as surstyli.

Female abdomen with segment 6 short; sternite 6 slightly wider than preceding sternites, not narrowed medially; segment 7 elongate, conical, posterior margin of sternite 7 straight; segment 8 also rather elongate, retractile within the segment 7, both tergite and sternite divided longitudinally, the sternite consisting of two quite narrow plates; tergite 9 and sternite 9 entire; cerci slender.

Dimensions: total length, ♂ 3·8–5·0 mm., ♀ 3·4–5·7 mm.; length of thorax, ♂ 2·2–3·0 mm., ♀ 2·0–3·2 mm.; length of wing, ♂ 3·6–5·2 mm., ♀ 3·9–5·5 mm.

Distribution: *Queensland*—as far north as Atherton Tableland; *New South Wales*—coast district, extending to tablelands only in the north.

Material examined: *Queensland*: Binna Burra, Lamington National Park, i 1961 (*holotype* ♂, *paratypes*, 4 ♂, 4 ♀, AM), ii 1961 (*paratypes*, 2 ♂, QM), D.K.M.; Lamington National Park, x 1957 (*paratype* ♀, UQ), I. C. Yeo; Tamborine Mountain, ii xii 1961 (*paratypes*, 2 ♂, 4 ♀, BM, 11 ♂, 14 ♀, AM), D.K.M.; Mount Glorious, near Brisbane, i 1961 (*paratypes*, 2 ♂, AM), D.K.M.; Summer Creek, Little Yabba Forestry Road, near Kenilworth, ii 1961 (*paratypes*, 8 ♂, 12 ♀, AM), D.K.M.; Mapleton, ii 1961 (*paratype* ♀, AM), D.K.M.; The Crater, Mount Hypipamee, near Herberton, xii 1961 (2 ♂, 2 ♀, AM), D.K.M. *New South Wales*: Huonbrook, near Mullumbimby, i xii 1961 (*paratypes* 1 ♀, AM, 1 ♀, USNM), D.K.M.; Bruxner Park, near Coffs Harbour, i 1961 (*paratype* ♂, AM), D.K.M.; Dorrigo, no date (*paratype* ♂, SAM), W. Heron; Dorrigo National Park, i 1961 (*paratypes*, 4 ♀, AM), D.K.M.; Upper Allyn, near Eccleston, 1000 ft., xi 1965 (1 ♂, 1 ♀, AM), D.K.M.; Upper Allyn River, 1500 ft., xi 1960 (1 ♀, CSIRO), I. F. B. Common and M. S. Upton; Palm Grove, near Wyong, vii 1961 (1 ♂, AM), D.K.M.; Royal National Park, near Sydney, i iv vi viii ix x xi xii 1956–1965 (2 ♂, 1 ♀, BM, 1 ♂, 1 ♀, USNM, 6 ♂, 10 ♀, AM), D.K.M.; Otford, Illawarra District, i ii iii x 1961–1965 (1 ♂, 1 ♀, CSIRO, 4 ♂, 5 ♀, AM), D.K.M.

Habitat: principally rain-forest.

Diplogeomyza annularis, sp. nov.

(Fig. 19)

♂ ♀. Head and thorax yellowish-brown, somewhat darker on dorsal surface. Palpi deep brown to blackish; antennae yellowish-brown, third segment darker brown except at base. Markings on mesoscutum very indistinct except for the usual yellowish marginal area on notopleuron and humeral callus; a pair of faint yellow-dusted submedian marks at anterior end of mesoscutum which tend to extend posteriorly as a pair of very faint stripes, and a faint pale narrow band immediately outside dorsocentral line; pleura with a dark upper marginal band; sternopleuron unmarked. Legs yellowish brown; fore femur suffused with darker brown except at base; knee of middle leg narrowly dark-brown; apex of hind femur more broadly dark brown. Wings marked as in *D. spinosa* (see below). Halteres yellowish with brown knobs. Abdomen brown, darker in male than in female.

Structure generally as described for *D. spinosa* below.

Male with surstylus (Fig. 19A) almost parallel-sided in mid section, expanded basally, apex curved inwards and slightly forwards, obtuse or subacute; paramere (Fig. 19B) elongate, apex acute and slightly curved forwards and inwards; basiphallus (Fig. 19C) much swollen distally on posterior side; distiphallus short, mostly membranous, with a Ω-shaped sclerite; cercus long-haired on most of surface.

Female with all postabdominal segments short, without spines on tergites; segment 7 forming a complete ring.

Dimensions: total length, ♂ 4·0–4·6 mm., ♀ 3·3–4·6 mm.; length of thorax, ♂ 2·1–2·9 mm., ♀ 1·9–2·9 mm.; length of wing, ♂ 4·3–6·0 mm., ♀ 4·5–5·9 mm.

Distribution: *Victoria.* All available specimens are from the eastern half of the state but this may merely indicate that little collecting has been done by dipterists west of Melbourne.

Material examined: Mount Donna Buang, near Warburton, iv 1963 (*holotype* ♂, *paratype* ♂, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (*paratypes,* 3 ♂, 1 ♀, CSIRO), D.H.C., iv 1963 (*paratypes,* 1 ♂, 3 ♀, USNM), iv 1963 (*paratypes,* 5 ♂, 6 ♀, AM, 1 ♂, BM), D.K.M.; Warburton, iv 1963 (*paratypes,* 1 ♂, 2 ♀, AM, 2 ♀, BM), D.K.M.; Ferntree Gully, iv 1963 (*paratype* ♂, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (*paratypes,* 1 ♀, CSIRO, 2 ♀, NMV), D.H.C.; 13 miles west of Matlock, iv 1963 (*paratype* ♂, AM), D.K.M.; Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (*paratype* ♂, AM), D.K.M.; Mount Beauty, near Bright, x 1961 (*paratype* ♂, CSIRO), D.H.C.; Stratford, x 1961 (*paratype* ♂, CSIRO), D.H.C.; Sardine Creek, Bonang Highway, x 1961 (*paratype* ♂, CSIRO), D.H.C.

Habitat: wet sclerophyll forest and rain forest.

Diplogeomyza victoriae, sp. nov.

(Fig. 20)

♂ ♀. Coloration generally similar to that of *D. spinosa* and *D. signata.* Frons light yellowish-brown with a pair of darker brown blotches on interfrontalia. Mesoscutum marked as in *D. signata* but with the brown longitudinal bands paler and the median one narrower; pleura similarly marked to that of *D. signata* but the markings more diffuse; mesopleuron suffused with brown on most of its surface but distinctly paler on lower part; brown band on sternopleuron rather pale and not very distinct because of additional faint suffusions of brown. Legs yellowish; fore femur brownish;

Diplogeomyza annularis, sp. nov.

(Fig. 19)

♂ ♀. Head and thorax yellowish-brown, somewhat darker on dorsal surface. Palpi deep brown to blackish; antennae yellowish-brown, third segment darker brown except at base. Markings on mesoscutum very indistinct except for the usual yellowish marginal area on notopleuron and humeral callus; a pair of faint yellow-dusted submedian marks at anterior end of mesoscutum which tend to extend posteriorly as a pair of very faint stripes, and a faint pale narrow band immediately outside dorsocentral line; pleura with a dark upper marginal band; sternopleuron unmarked. Legs yellowish brown; fore femur suffused with darker brown except at base; knee of middle leg narrowly dark-brown; apex of hind femur more broadly dark brown. Wings marked as in *D. spinosa* (see below). Halteres yellowish with brown knobs. Abdomen brown, darker in male than in female.

Structure generally as described for *D. spinosa* below.

Male with surstylus (Fig. 19A) almost parallel-sided in mid section, expanded basally, apex curved inwards and slightly forwards, obtuse or subacute; paramere (Fig. 19B) elongate, apex acute and slightly curved forwards and inwards; basiphallus (Fig. 19C) much swollen distally on posterior side; distiphallus short, mostly membranous, with a Ω-shaped sclerite; cercus long-haired on most of surface.

Female with all postabdominal segments short, without spines on tergites; segment 7 forming a complete ring.

Dimensions: total length, ♂ 4·0–4·6 mm., ♀ 3·3–4·6 mm.; length of thorax, ♂ 2·1–2·9 mm., ♀ 1·9–2·9 mm.; length of wing, ♂ 4·3–6·0 mm., ♀ 4·5–5·9 mm.

Distribution: *Victoria.* All available specimens are from the eastern half of the state but this may merely indicate that little collecting has been done by dipterists west of Melbourne.

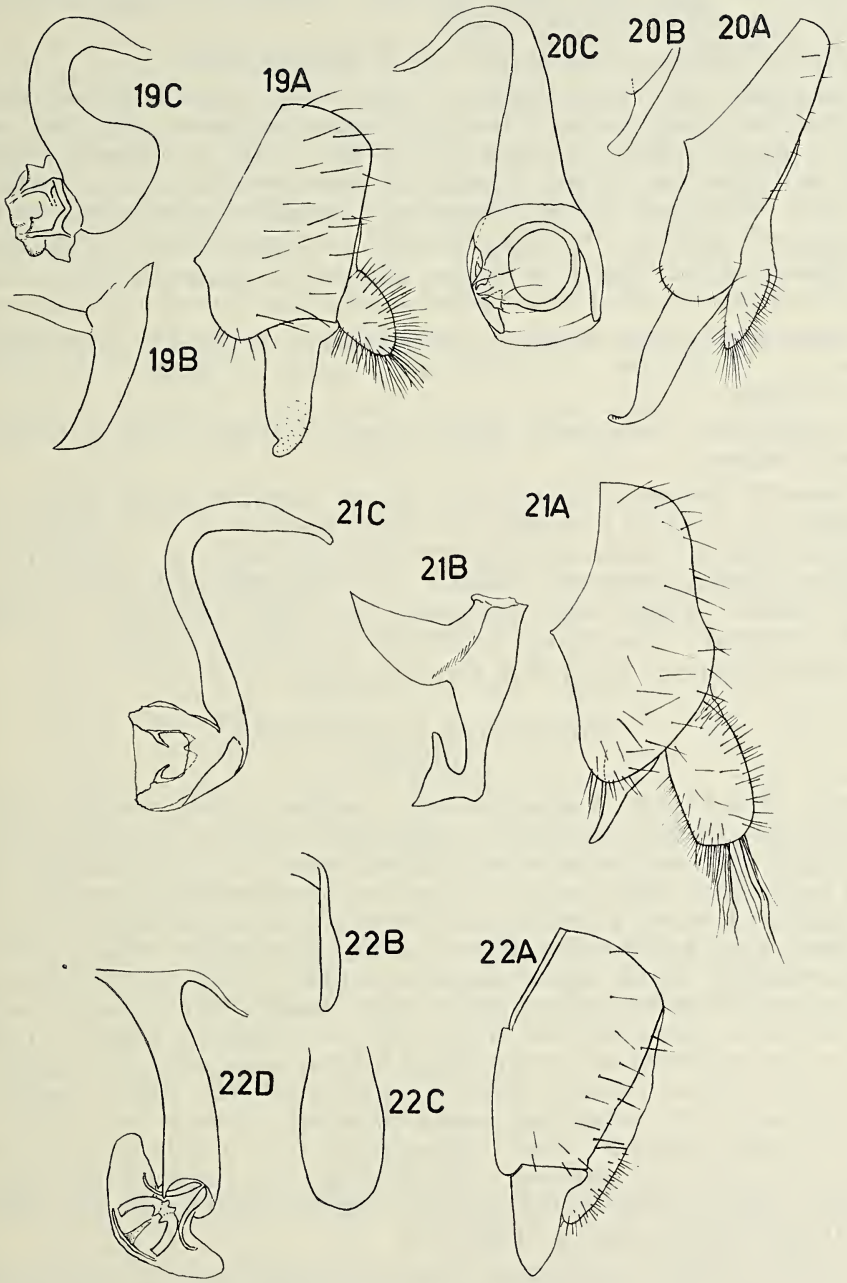
Material examined: Mount Donna Buang, near Warburton, iv 1963 (*holotype* ♂, *paratype* ♂, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (*paratypes,* 3 ♂, 1 ♀, CSIRO), D.H.C., iv 1963 (*paratypes,* 1 ♂, 3 ♀, USNM), iv 1963 (*paratypes,* 5 ♂, 6 ♀, AM, 1 ♂, BM), D.K.M.; Warburton, iv 1963 (*paratypes,* 1 ♂, 2 ♀, AM, 2 ♀, BM), D.K.M.; Ferntree Gully, iv 1963 (*paratype* ♂, AM), D.K.M.; Mount Dom Dom (Black Spur), near Healesville, x 1961 (*paratypes,* 1 ♀, CSIRO, 2 ♀, NMV), D.H.C.; 13 miles west of Matlock, iv 1963 (*paratype* ♂, AM), D.K.M.; Frenchman's Gap, near Woods Point, 3500 ft., iv 1963 (*paratype* ♂, AM), D.K.M.; Mount Beauty, near Bright, x 1961 (*paratype* ♂, CSIRO), D.H.C.; Stratford, x 1961 (*paratype* ♂, CSIRO), D.H.C.; Sardine Creek, Bonang Highway, x 1961 (*paratype* ♂, CSIRO), D.H.C.

Habitat: wet sclerophyll forest and rain forest.

Diplogeomyza victoriae, sp. nov.

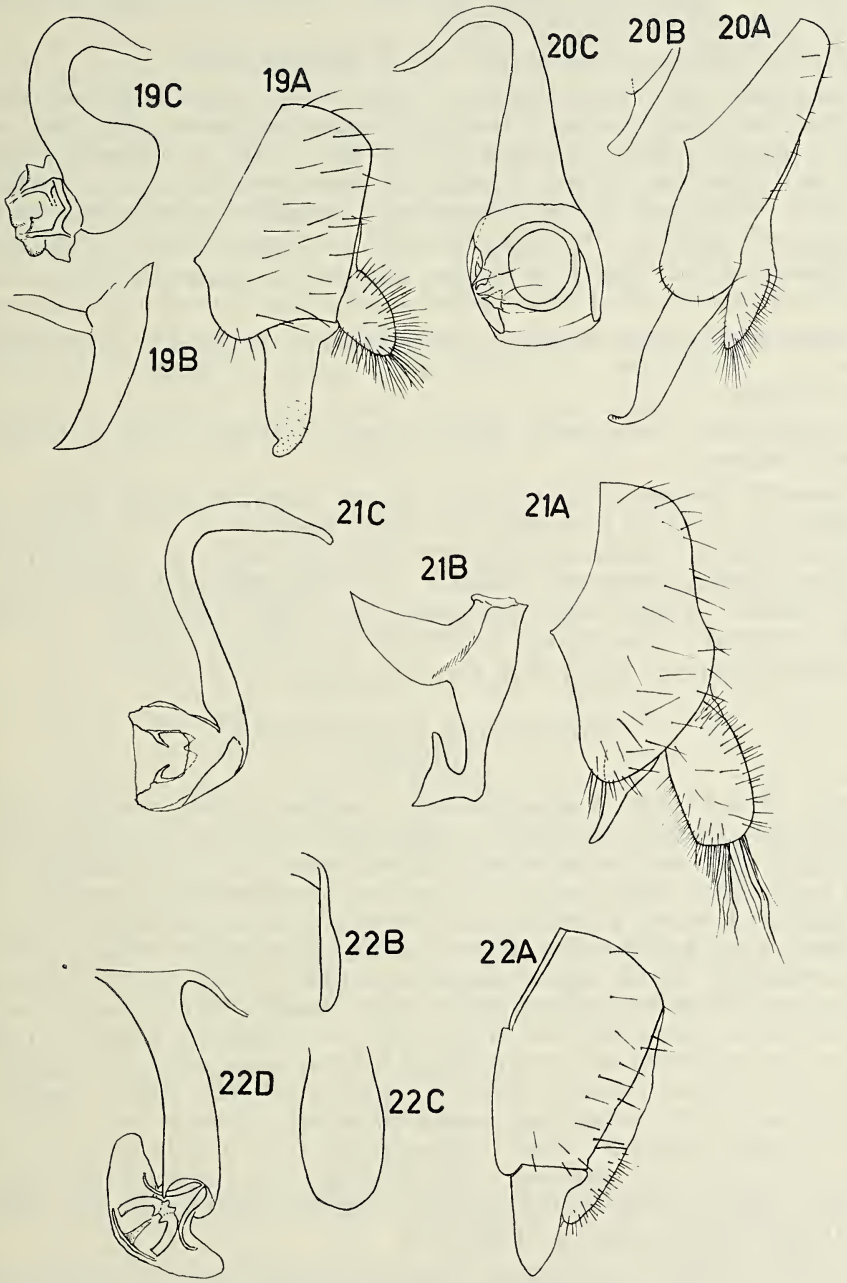
(Fig. 20)

♂ ♀. Coloration generally similar to that of *D. spinosa* and *D. signata.* Frons light yellowish-brown with a pair of darker brown blotches on interfrontalia. Mesoscutum marked as in *D. signata* but with the brown longitudinal bands paler and the median one narrower; pleura similarly marked to that of *D. signata* but the markings more diffuse; mesopleuron suffused with brown on most of its surface but distinctly paler on lower part; brown band on sternopleuron rather pale and not very distinct because of additional faint suffusions of brown. Legs yellowish; fore femur brownish;



Figs 19–22

19, *Diplogeomyza victoriae*, sp. nov., paratype, Cement Creek. A, epandrium. B, left paramere. C, aedeagus; 20, *Diplogeomyza annularis*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus from right; 21, *Diplogeomyza spinosa*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 22, *Diplogeomyza signata*, sp. nov., paratype, Royal National Park A, epandrium. B, left paramere, lateral aspect. C, left paramere, posterior aspect. D, aedeagus.



Figs 19–22

19, *Diplogeomyza victoriae*, sp. nov., paratype, Cement Creek. A, epandrium. B, left paramere. C, aedeagus; 20, *Diplogeomyza annularis*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus from right; 21, *Diplogeomyza spinosa*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 22, *Diplogeomyza signata*, sp. nov., paratype, Royal National Park A, epandrium. B, left paramere, lateral aspect. C, left paramere, posterior aspect. D, aedeagus.

middle and hind femur brown apically; base of middle tibia and bases and apices of fore and hind tibiae brownish. Abdomen brownish yellow, the tergites darkened on lateral margins.

General structure as described for *D. spinosa* below.

Surstylus (Fig. 20A) similar to those of *D. media* but more elongate with very long incurved hook-like apical part; paramere (Fig. 20B), small, rod-like, almost straight; aedeagus (Fig. 20C), with sclerotized basiphallus which is dilated and forked distally, the limbs supporting the distiphallus; the latter short and broad, containing a ring-like sclerite and with two superimposed pairs of claw-like processes; cerci much shorter than surstyli.

Female without spines on tergites of terminal segments; segment 7 with tergite and sternite fused into a complete ring, but this segment not elongate.

Dimensions: total length, ♂ 3·6–4·5 mm., ♀ 3·2–4·6 mm.; length of thorax, ♂ 1·8–2·5 mm., ♀ 2·2–2·5 mm.; length of wing, ♂ 3·7–5·4 mm., ♀ 4·2–5·0 mm.

Distribution: *New South Wales*—Coast to eastern edge of tablelands; eastern *Victoria*.

Material examined: *New South Wales*: Royal National Park, x 1956 (*holotype* ♂, AM), ix x xi 1955–1965 (*paratypes*, 3 ♂, 2 ♀, AM), D.K.M.; Waterfall, Royal National Park, iv 1925 (*paratype* ♂, CSIRO), I. M. Mackerras; Otford, Illawarra District, iii x 1959–1961 (*paratypes*, 1 ♂, 1 ♀, AM), D.K.M.; Monga near Braidwood, vii 1962 (*paratype* ♂, CSIRO), D.H.C. *Victoria*: Nowa Nowa, x 1961 (1 ♀, CSIRO), D.H.C.

Habitat: stream margins in forest country.

Diplogeomyza spinosa, sp. nov.

(Fig. 21)

♂ ♀. Head pale yellowish; frons suffused with brown; antennae yellowish-brown; palpi dark-brown. Mesonotum light-brown, lateral margins including humeri and notopleura pale buff, a pair of narrow darker stripes along dorsocentral lines, a median darker stripe usually present but diffuse and ill defined, a pair of sublateral dark brown bands posteriorly which join the dorsocentral bands at the suture, a pair of indistinct whitish submedian bands anteriorly which are usually interrupted at the suture; pleura buff, with a broad dark-brown band along upper margin from humeral callus to base of haltere; sternopleuron with a light brown spot in front of and often more or less enclosing the sternopleural bristle. Legs pale-brown or buff, all femora with apices broadly black or dark-brown, fore femur usually with an additional brown submedian band; tibiae with bases brown to black and apices broadly blackish; tarsi darkened apically. Wings greyish hyaline, with brown spots on anterior and posterior cross-veins and at apices of veins 2, 3, and 4. Halteres light-brown. Abdomen light-brown with posterior and lateral edges of tergites dark-brown.

Anterior cheek bristles rather strong but usually short; third antennal segment ovate, arista plumose, the longer dorsal hairs about as long as width of third segment, the ventral hairs shorter.

Scutellum with two pairs of bristles and numerous coarse setulae; sternopleuron with one upper bristle.

Male with surstylus (Fig. 21A) broad basally, narrowing into an almost straight acuminate apical part. Paramere (Fig. 21B) rather long, bent forwards and dilated near tip where there are two angular projections, the longer one directed towards base. Aedeagus (Fig. 21C) with basiphallus

middle and hind femur brown apically; base of middle tibia and bases and apices of fore and hind tibiae brownish. Abdomen brownish yellow, the tergites darkened on lateral margins.

General structure as described for *D. spinosa* below.

Surstylus (Fig. 20A) similar to those of *D. media* but more elongate with very long incurved hook-like apical part; paramere (Fig. 20B), small, rod-like, almost straight; aedeagus (Fig. 20C), with sclerotized basiphallus which is dilated and forked distally, the limbs supporting the distiphallus; the latter short and broad, containing a ring-like sclerite and with two superimposed pairs of claw-like processes; cerci much shorter than surstyli.

Female without spines on tergites of terminal segments; segment 7 with tergite and sternite fused into a complete ring, but this segment not elongate.

Dimensions: total length, ♂ 3·6–4·5 mm., ♀ 3·2–4·6 mm.; length of thorax, ♂ 1·8–2·5 mm., ♀ 2·2–2·5 mm.; length of wing, ♂ 3·7–5·4 mm., ♀ 4·2–5·0 mm.

Distribution: *New South Wales*—Coast to eastern edge of tablelands; eastern *Victoria*.

Material examined: *New South Wales*: Royal National Park, x 1956 (*holotype* ♂, AM), ix x xi 1955–1965 (*paratypes*, 3 ♂, 2 ♀, AM), D.K.M.; Waterfall, Royal National Park, iv 1925 (*paratype* ♂, CSIRO), I. M. Mackerras; Otford, Illawarra District, iii x 1959–1961 (*paratypes*, 1 ♂, 1 ♀, AM), D.K.M.; Monga near Braidwood, vii 1962 (*paratype* ♂, CSIRO), D.H.C. *Victoria*: Nowa Nowa, x 1961 (1 ♀, CSIRO), D.H.C.

Habitat: stream margins in forest country.

Diplogeomyza spinosa, sp. nov.

(Fig. 21)

♂ ♀. Head pale yellowish; frons suffused with brown; antennae yellowish-brown; palpi dark-brown. Mesonotum light-brown, lateral margins including humeri and notopleura pale buff, a pair of narrow darker stripes along dorsocentral lines, a median darker stripe usually present but diffuse and ill defined, a pair of sublateral dark brown bands posteriorly which join the dorsocentral bands at the suture, a pair of indistinct whitish submedian bands anteriorly which are usually interrupted at the suture; pleura buff, with a broad dark-brown band along upper margin from humeral callus to base of haltere; sternopleuron with a light brown spot in front of and often more or less enclosing the sternopleural bristle. Legs pale-brown or buff, all femora with apices broadly black or dark-brown, fore femur usually with an additional brown submedian band; tibiae with bases brown to black and apices broadly blackish; tarsi darkened apically. Wings greyish hyaline, with brown spots on anterior and posterior cross-veins and at apices of veins 2, 3, and 4. Halteres light-brown. Abdomen light-brown with posterior and lateral edges of tergites dark-brown.

Anterior cheek bristles rather strong but usually short; third antennal segment ovate, arista plumose, the longer dorsal hairs about as long as width of third segment, the ventral hairs shorter.

Scutellum with two pairs of bristles and numerous coarse setulae; sternopleuron with one upper bristle.

Male with surstylus (Fig. 21A) broad basally, narrowing into an almost straight acuminate apical part. Paramere (Fig. 21B) rather long, bent forwards and dilated near tip where there are two angular projections, the longer one directed towards base. Aedeagus (Fig. 21C) with basiphallus

rather long, tubular; distiphallus with forked skeletal element supporting a pair of opposed claws. Cerci large with long apical hairs.

Female postabdomen symmetrical, blunt at apex. Segment 6 similar to preceding segments but slightly shorter; tergite 6 without spines; segment 7 short, the tergite with a patch of thick black spines on each side, posterior margin entire, lateral edges produced ventrally and embracing the sternite; the latter divided by a median suture but the halves not separated; tergite 8 divided into two sclerites, with numerous thick black spines; sternite 8 sinuate medially on posterior margin; cerci short and rounded.

Dimensions: total length, ♂ 3·8–7·2 mm., ♀ 4·2–6·9 mm.; length of thorax, ♂ 1·9–3·5 mm., ♀ 2·3–3·5; length of wing, ♂ 4·2–6·8 mm., ♀ 4·5–7·3 mm.

Distribution: New South Wales and southern Queensland—Coast to tablelands; Victoria.

Material examined: *New South Wales*: Royal National Park, x 1960 (*holotype* ♂, AM), iii iv vi x xi xii 1956-1965 (*paratypes*, 19 ♂, 32 ♀, AM, 2 ♂, 1 ♀, DEI, 1 ♂, 2 ♀, USNM), D.K.M.; Otford, Illawarra District, ii x xii 1957-1965 (*paratypes*, 10 ♂, AM, 2 ♂, 2 ♀, BM), D.K.M.; Minnamurra Falls, near Kiama, xi 1960 (*paratype* ♂, CSIRO), I. F. B. Common and M. S. Upton, ii x xii 1961-1962 (*paratypes*, 10 ♂, 6 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (paratype ♂, AM), D.K.M. Rutherford Creek, Brown Mountain, near Nimmitabel, iii 1961 (2 ♀, CSIRO), D.H.C.; Springwood, i 1956 (*paratype* ♀, AM), D.K.M.; Wentworth Falls, ix x xi 1958–1965 (paratypes, 4 ♂, 3 ♀, AM, 2 ♂, 1 ♀, BM), D.K.M.; Below Govett's Leap, Blue Mountains, ix 1957 (*paratype* ♀, AM), D.K.M.; Mount Wilson, Blue Mountains, iii v vii viii ix x 1957-1961 (*paratypes*, 6 ♂, 3 ♀, AM), D.K.M.; near Mangrove Mountain, Hawkesbury River, viii 1956 (*paratype* ♀, AM), D.K.M.; Mooney Mooney Creek, near Gosford, x 1956 (*paratype* ♂, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (6 ♂, 6 ♀, AM), D.K.M.; Dorrigo National Park, i 1961 (1 ♂, 1 ♀, AM), D.K.M.; Bruxner Park, near Coffs Harbour x 1962 (2 ♂, 1 ♀, CSIRO), D.H.C.; Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (1 ♂, AM), D.K.M.; Huonbrook, near Mullumbimby, xii 1961 (1 ♂, AM), D.K.M. *Queensland*: Binna Burra, Lamington National Park, ii 1961 (1 ♂, AM), D.K.M.; Summer Creek, Little Yabba Forestry Road, near Kenilworth, ii 1961 (2 ♂, 1 ♀, AM), D.K.M. *Victoria*: Warburton, iv 1963 (1 ♂, AM), D.K.M.

Habitat: forests, especially near streams.

Diplogeomyza signata, sp. nov.

(Fig. 22)

♂ ♀. General colour as described for *D. spinosa,* but the following characters are noteworthy: frons with three broad brown longitudinal bands; mesoscutum with a pair of narrow pale-yellowish stripes along dorsocentral lines and a pair of similar submedian stripes which divide the intradorsocentral region into three broad, brown, well defined bands which coalesce and form two bands posteriorly; two sublateral brown bands on each side of mesoscutum behind suture, coalescing to form a single band in front of suture; mesopleuron dark-brown on upper part where the dark pleural band crosses it as in *D. spinosa,* pale yellowish on the lower third; sternopleuron without brown spot at base of sternopleural bristle, but with broad, dark-brown band almost reaching from fore coxa to middle coxa; legs brownish-yellow, femora broadly blackish at apices; tibiae brownish at bases and less distinctly so at apices; abdomen brown.

rather long, tubular; distiphallus with forked skeletal element supporting a pair of opposed claws. Cerci large with long apical hairs.

Female postabdomen symmetrical, blunt at apex. Segment 6 similar to preceding segments but slightly shorter; tergite 6 without spines; segment 7 short, the tergite with a patch of thick black spines on each side, posterior margin entire, lateral edges produced ventrally and embracing the sternite; the latter divided by a median suture but the halves not separated; tergite 8 divided into two sclerites, with numerous thick black spines; sternite 8 sinuate medially on posterior margin; cerci short and rounded.

Dimensions: total length, ♂ 3·8–7·2 mm., ♀ 4·2–6·9 mm.; length of thorax, ♂ 1·9–3·5 mm., ♀ 2·3–3·5; length of wing, ♂ 4·2–6·8 mm., ♀ 4·5–7·3 mm.

Distribution: New South Wales and southern Queensland—Coast to tablelands; Victoria.

Material examined: *New South Wales*: Royal National Park, x 1960 (*holotype* ♂, AM), iii iv vi x xi xii 1956-1965 (*paratypes*, 19 ♂, 32 ♀, AM, 2 ♂, 1 ♀, DEI, 1 ♂, 2 ♀, USNM), D.K.M.; Otford, Illawarra District, ii x xii 1957-1965 (*paratypes*, 10 ♂, AM, 2 ♂, 2 ♀, BM), D.K.M.; Minnamurra Falls, near Kiama, xi 1960 (*paratype* ♂, CSIRO), I. F. B. Common and M. S. Upton, ii x xii 1961-1962 (*paratypes*, 10 ♂, 6 ♀, AM), D.K.M.; Clyde Mountain, near Braidwood, 2400 ft., ii 1961 (paratype ♂, AM), D.K.M. Rutherford Creek, Brown Mountain, near Nimmitabel, iii 1961 (2 ♀, CSIRO), D.H.C.; Springwood, i 1956 (*paratype* ♀, AM), D.K.M.; Wentworth Falls, ix x xi 1958–1965 (paratypes, 4 ♂, 3 ♀, AM, 2 ♂, 1 ♀, BM), D.K.M.; Below Govett's Leap, Blue Mountains, ix 1957 (*paratype* ♀, AM), D.K.M.; Mount Wilson, Blue Mountains, iii v vii viii ix x 1957-1961 (*paratypes*, 6 ♂, 3 ♀, AM), D.K.M.; near Mangrove Mountain, Hawkesbury River, viii 1956 (*paratype* ♀, AM), D.K.M.; Mooney Mooney Creek, near Gosford, x 1956 (*paratype* ♂, AM), D.K.M.; Wright's Lookout, New England National Park, iii iv 1961 (6 ♂, 6 ♀, AM), D.K.M.; Dorrigo National Park, i 1961 (1 ♂, 1 ♀, AM), D.K.M.; Bruxner Park, near Coffs Harbour x 1962 (2 ♂, 1 ♀, CSIRO), D.H.C.; Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (1 ♂, AM), D.K.M.; Huonbrook, near Mullumbimby, xii 1961 (1 ♂, AM), D.K.M. *Queensland*: Binna Burra, Lamington National Park, ii 1961 (1 ♂, AM), D.K.M.; Summer Creek, Little Yabba Forestry Road, near Kenilworth, ii 1961 (2 ♂, 1 ♀, AM), D.K.M. *Victoria*: Warburton, iv 1963 (1 ♂, AM), D.K.M.

Habitat: forests, especially near streams.

Diplogeomyza signata, sp. nov.

(Fig. 22)

♂ ♀. General colour as described for *D. spinosa,* but the following characters are noteworthy: frons with three broad brown longitudinal bands; mesoscutum with a pair of narrow pale-yellowish stripes along dorsocentral lines and a pair of similar submedian stripes which divide the intradorsocentral region into three broad, brown, well defined bands which coalesce and form two bands posteriorly; two sublateral brown bands on each side of mesoscutum behind suture, coalescing to form a single band in front of suture; mesopleuron dark-brown on upper part where the dark pleural band crosses it as in *D. spinosa,* pale yellowish on the lower third; sternopleuron without brown spot at base of sternopleural bristle, but with broad, dark-brown band almost reaching from fore coxa to middle coxa; legs brownish-yellow, femora broadly blackish at apices; tibiae brownish at bases and less distinctly so at apices; abdomen brown.

General structure as described for *D. spinosa.* Legs of male normal; fore tibia of female with a broad anterodorsal band of soft cuticle (tending to collapse in dried specimens) extending from near base to extreme apex, which is densely pilose but almost or completely without any normal setulae.

Epandrium (Fig. 22A) with rather short subacute surstylus, broadened at extreme base; paramere (Fig. 22B, C) compressed, with almost parallel sides, broadly rounded apically, placed in an almost transverse plane; aedeagus (Fig. 22D) with tubular sclerotized basiphallus, distiphallus membranous with a pair of narrow. tapering, diverging sclerites where it joins the basal part, a triradiate sclerite on distal surface, and a small compact central sclerite with two slender arms; cerci almost as long as surstyli, without conspicuously long hairs.

Female postabdomen structurally similar to that of *D. spinosa,* symmetrical; tergite 6, unlike *D. spinosa* and *D. media,* with some short spines mixed with the longer hairs near posterior margin; tergite 7 spinose except on median line, the posterior margin sinuate medially, the lateral parts not produced ventrally; seventh sternite simple, transversely oblong; tergite 8 completely divided, spinose; sternite 8 with straight posterior margin.

Dimensions: total length, ♂ 3·0–5·1 mm., ♀ 3·3–4·2 mm.; length of thorax, ♂ 1·6–3·0 mm., ♀ 2·1–2·6 mm.; length of wing, ♂ 3·1–5·4 mm., ♀ 3·8–4·8 mm.

Distribution: New South Wales and Queensland—coast and tablelands.

Material examined: *New South Wales*: Wentworth Falls, Blue Mountains, xi 1958 (*holotype* ♂, *paratype* ♀, AM), xi 1960 (*paratypes,* 2 ♂, 2 ♀, AM,); below Govett's Leap, Blue Mountains, ix 1957 (*paratype* ♂, AM); Mount Wilson, Blue Mountains, vi 1964 (*paratype* ♀, AM); Royal National Park, i iii vi viii xi 1955-1965 (*paratypes,* 10 ♂, 7 ♀, AM, 2 ♂, 1 ♀, USNM); Otford, Illawarra District, ii x 1957-1962 (*paratypes,* 1 ♂, 1 ♀, AM, 1 ♂, 1 ♀, BM); Minnamurra Falls, near Kiama, i ii x 1961-1962 (*paratypes,* 1 ♂, 4 ♀, AM, 1 ♂, 1 ♀, CSIRO); Mooney Mooney Creek, near Gosford, x 1956 (*paratype* ♂, AM); Dorrigo National Park, i 1961 (3 ♂, AM); Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (2 ♂, AM); all the above collected D.K.M. *Queensland*: Brisbane, iv 1933 (1 ♂, UQ), F. A. Perkins; Bunya Mountains, ii 1961 (1 ♂, AM), D.K.M.; Broken River, Eungella, xii 1961 (2 ♂, 2 ♀, AM, 1 ♀, QM), D.K.M.; Mount Dalrymple Road, Eungella, xii 1961 (1 ♂, 1 ♀, AM), D.K.M.; The Crater (or Mount Hypipamee), near Herberton, xii 1961 (2 ♀, AM), R. Lossin and D.K.M.

Habitat: rain forest bordering streams.

The females of this species differ from all others of the genus in the structure of the fore tibia. The specialized area described above may be a sense organ.

Diplogeomyza media, sp. nov.

(Fig. 23)

♂ ♀. General colour as described for *D. spinosa,* but the following differences are notable: mesoscutum with a distinct blackish median band, submedian whitish bands not interrupted at suture; no brownish patch associated with sternopleural bristle, but sternopleuron with a brown oblique stripe, connecting fore and middle coxae or almost so; fore femur brown, paler on ventral surface; apices of tibiae narrowly brownish.

General structure as described for *D. spinosa.*

General structure as described for *D. spinosa.* Legs of male normal; fore tibia of female with a broad anterodorsal band of soft cuticle (tending to collapse in dried specimens) extending from near base to extreme apex, which is densely pilose but almost or completely without any normal setulae.

Epandrium (Fig. 22A) with rather short subacute surstylus, broadened at extreme base; paramere (Fig. 22B, C) compressed, with almost parallel sides, broadly rounded apically, placed in an almost transverse plane; aedeagus (Fig. 22D) with tubular sclerotized basiphallus, distiphallus membranous with a pair of narrow. tapering, diverging sclerites where it joins the basal part, a triradiate sclerite on distal surface, and a small compact central sclerite with two slender arms; cerci almost as long as surstyli, without conspicuously long hairs.

Female postabdomen structurally similar to that of *D. spinosa,* symmetrical; tergite 6, unlike *D. spinosa* and *D. media,* with some short spines mixed with the longer hairs near posterior margin; tergite 7 spinose except on median line, the posterior margin sinuate medially, the lateral parts not produced ventrally; seventh sternite simple, transversely oblong; tergite 8 completely divided, spinose; sternite 8 with straight posterior margin.

Dimensions: total length, ♂ 3·0–5·1 mm., ♀ 3·3–4·2 mm.; length of thorax, ♂ 1·6–3·0 mm., ♀ 2·1–2·6 mm.; length of wing, ♂ 3·1–5·4 mm., ♀ 3·8–4·8 mm.

Distribution: New South Wales and Queensland—coast and tablelands.

Material examined: *New South Wales*: Wentworth Falls, Blue Mountains, xi 1958 (*holotype* ♂, *paratype* ♀, AM), xi 1960 (*paratypes,* 2 ♂, 2 ♀, AM,); below Govett's Leap, Blue Mountains, ix 1957 (*paratype* ♂, AM); Mount Wilson, Blue Mountains, vi 1964 (*paratype* ♀, AM); Royal National Park, i iii vi viii xi 1955-1965 (*paratypes,* 10 ♂, 7 ♀, AM, 2 ♂, 1 ♀, USNM); Otford, Illawarra District, ii x 1957-1962 (*paratypes,* 1 ♂, 1 ♀, AM, 1 ♂, 1 ♀, BM); Minnamurra Falls, near Kiama, i ii x 1961-1962 (*paratypes,* 1 ♂, 4 ♀, AM, 1 ♂, 1 ♀, CSIRO); Mooney Mooney Creek, near Gosford, x 1956 (*paratype* ♂, AM); Dorrigo National Park, i 1961 (3 ♂, AM); Mount Gibraltar National Park, 64 miles W of Grafton, ii 1965 (2 ♂, AM); all the above collected D.K.M. *Queensland*: Brisbane, iv 1933 (1 ♂, UQ), F. A. Perkins; Bunya Mountains, ii 1961 (1 ♂, AM), D.K.M.; Broken River, Eungella, xii 1961 (2 ♂, 2 ♀, AM, 1 ♀, QM), D.K.M.; Mount Dalrymple Road, Eungella, xii 1961 (1 ♂, 1 ♀, AM), D.K.M.; The Crater (or Mount Hypipamee), near Herberton, xii 1961 (2 ♀, AM), R. Lossin and D.K.M.

Habitat: rain forest bordering streams.

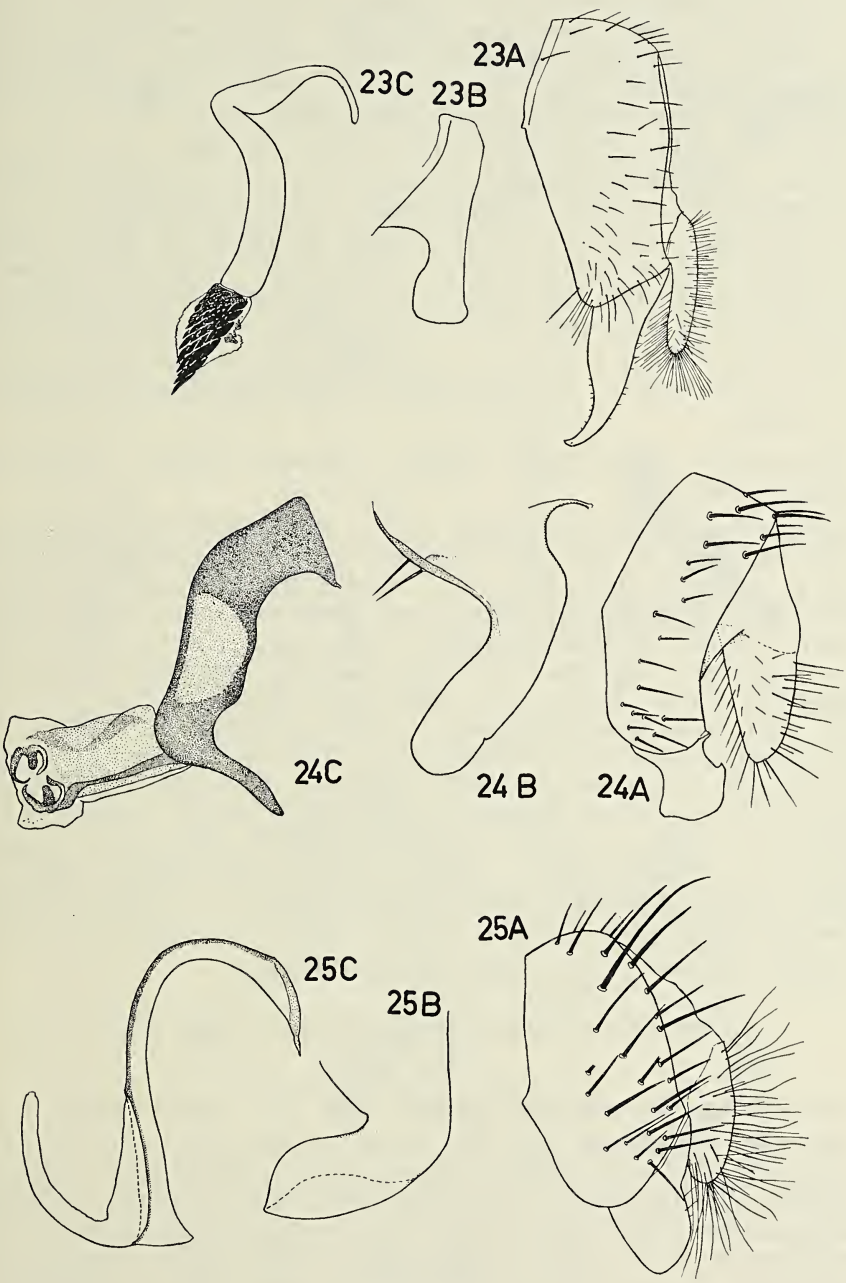
The females of this species differ from all others of the genus in the structure of the fore tibia. The specialized area described above may be a sense organ.

Diplogeomyza media, sp. nov.

(Fig. 23)

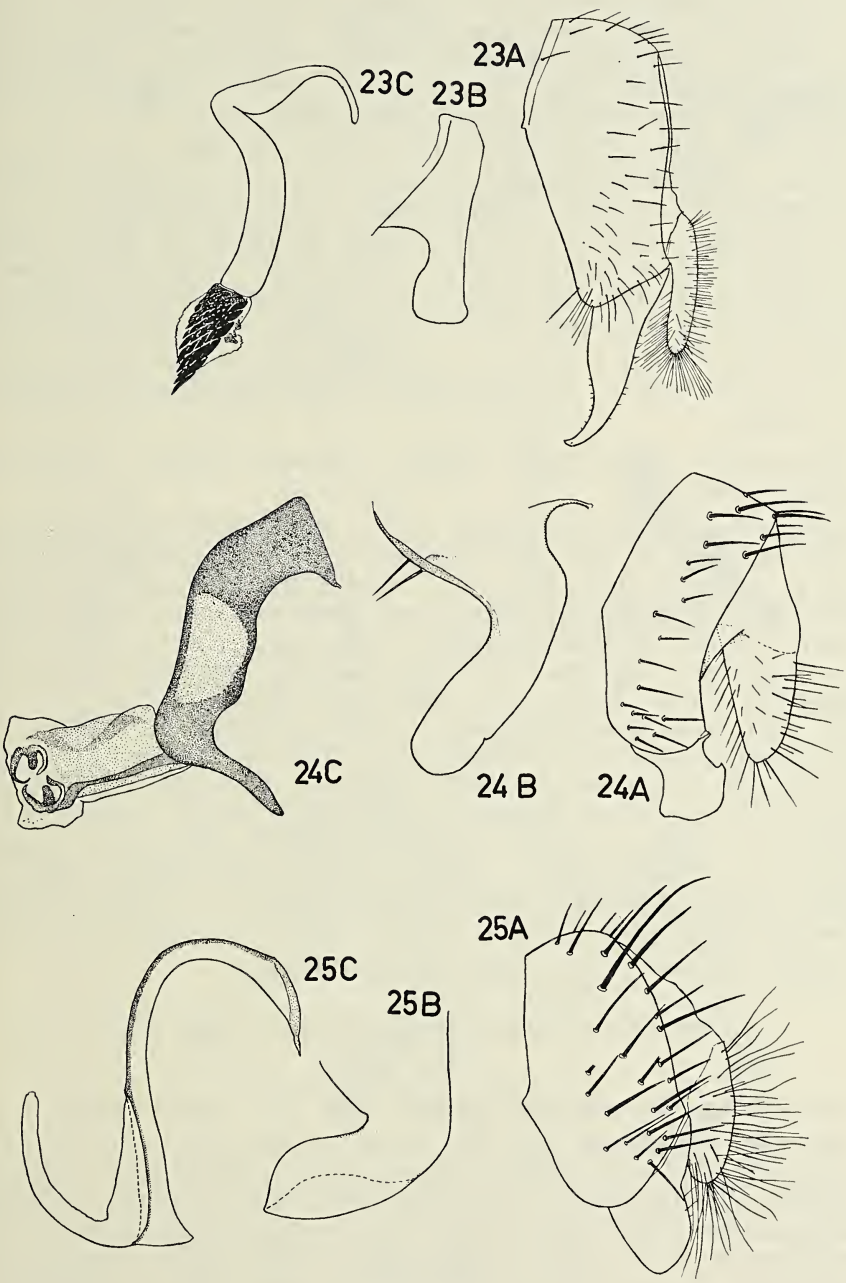
♂ ♀. General colour as described for *D. spinosa,* but the following differences are notable: mesoscutum with a distinct blackish median band, submedian whitish bands not interrupted at suture; no brownish patch associated with sternopleural bristle, but sternopleuron with a brown oblique stripe, connecting fore and middle coxae or almost so; fore femur brown, paler on ventral surface; apices of tibiae narrowly brownish.

General structure as described for *D. spinosa.*



Figs 23–25

23, *Diplogcomyza media*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 24, *Diplogeomyza maculipennis* (Malloch), Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 25, *Diplogeomyza pectinervis*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus.



Figs 23–25

23, *Diplogcomyza media*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 24, *Diplogeomyza maculipennis* (Malloch), Royal National Park. A, epandrium. B, left paramere. C, aedeagus; 25, *Diplogeomyza pectinervis*, sp. nov., paratype, Royal National Park. A, epandrium. B, left paramere. C, aedeagus.

Epandrium (Fig. 23A) with elongate surstylus, its distal half tapering, acuminate and incurved at tip; parameres (Fig. 23B) large, almost straight, much dilated basally, and broadly clavate at apices, the left one slightly broader than the right; aedeagus (Fig. 23C) with basiphallus forming a long, heavily sclerotized, incomplete tube; distiphallus consisting of a membranous posterior part with an area of short, dense hairs, and an anterior part armed with numerous thick, black spines which are longest apically; cerci large with hairs on distal part quite long.

Female postabdomen similar to that of *D. spinosa* with the following notable differences: tergite 7 asymmetrical, produced further on to ventral surface on right side than on left, spinose on the whole of the posterior part of dorsal surface; sternite 7 also asymmetrical through the encroachment of the tergite on the right side, without a median suture; tergite 8 incompletely divided; sternite 8 not sinuate but prominent near centre of posterior margin.

Dimensions: total length, ♂ 4·1–5·4 mm., ♀ 4·2–5·1 mm.; length of thorax, ♂ 2·4–3·0 mm., ♀ 2·3–3·0 mm.; length of wing, ♂ 4·9–6·2 mm., ♀ 4·4–5·7 mm.

Distribution: New South Wales, Victoria, southern Queensland—principally tablelands.

Material examined: *New South Wales*: Mount Wilson, Blue Mountains, viii 1958 (*holotype* ♂, AM), iii iv v vi vii viii ix x xii 1956–1964 (*paratypes,* 7 ♂, 7 ♀, AM, 1 ♂, 1 ♀, BM, 1 ♂, USNM), D.K.M., ii 1936 (*paratype* ♀, CSIRO), D. F. Waterhouse; Mount York, Blue Mountains, x 1960 (*paratype* ♀, AM), D.K.M.; Wentworth Falls, xi 1958 (*paratype* ♂, AM), D.K.M.; Gowee Gulch, near Rylstone, viii 1956 (*paratype* ♀, AM), D.K.M.; Royal National Park, near Sydney, i ix 1955–1957 (*paratypes,* 2 ♂, 1 ♀, AM), D.K.M.; Colo Vale, near Mittagong, iii 1957 (*paratype* ♀, USNM), W. W. Wirth; Clyde Mountain, near Braidwood, x 1960 (*paratypes,* 2 ♂, CSIRO), D. H. C. and S. J. Paramonov, ii 1961 (*paratypes,* 3 ♂, AM), D.K.M.; Gwydir Highway, 72 miles W of Grafton, xi 1964 (1 ♂, AM), D.K.M. *Victoria*: Warburton, iv 1963 (1 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (2 ♂, CSIRO), D.H.C.; Mount Beauty, near Bright, x 1961 (1 ♂, CSIRO), D.H.C.; Noorinbee, near Orbost, xi 1965 (1 ♂, NMV), A. Neboiss. *Queensland*: Lamington National Park, x 1934 (1 ♀, UQ), F. A. Perkins.

Habitat: forest country, especially near streams.

Diplogeomyza maculipennis (Malloch), new comb.

(Fig. 24)

Huttonomyia maculipennis Malloch, 1926: 552, Fig. 6 (wing).

Malloch's description and his figure of the wing are adequate for identification. The wing pattern is particularly characteristic. The species is evidently closely related to *D. pectinervis,* but is without crossveins in the marginal cell. The distinct brown band on the sternopleuron is evidence of relationship to *D. signata* and *media,* which have a similar female postabdomen. It is the only species of the genus with the eyes distinctly longer than high.

Epandrium (Fig. 24A) with surstylus very short, narrowed in basal half, produced into a short angular projection of posterior side; paramere (Fig. 24B) elongate, exceeding surstylus, bent forward near base, rounded at apex, more slender than in *D. pectinervis* and without internal carina; sternite 9 sclerotized on each side of and in front of aedeagus, with a small gibbosity on each side in front of which are two setulae, internal part

Epandrium (Fig. 23A) with elongate surstylus, its distal half tapering, acuminate and incurved at tip; parameres (Fig. 23B) large, almost straight, much dilated basally, and broadly clavate at apices, the left one slightly broader than the right; aedeagus (Fig. 23C) with basiphallus forming a long, heavily sclerotized, incomplete tube; distiphallus consisting of a membranous posterior part with an area of short, dense hairs, and an anterior part armed with numerous thick, black spines which are longest apically; cerci large with hairs on distal part quite long.

Female postabdomen similar to that of *D. spinosa* with the following notable differences: tergite 7 asymmetrical, produced further on to ventral surface on right side than on left, spinose on the whole of the posterior part of dorsal surface; sternite 7 also asymmetrical through the encroachment of the tergite on the right side, without a median suture; tergite 8 incompletely divided; sternite 8 not sinuate but prominent near centre of posterior margin.

Dimensions: total length, ♂ 4·1–5·4 mm., ♀ 4·2–5·1 mm.; length of thorax, ♂ 2·4–3·0 mm., ♀ 2·3–3·0 mm.; length of wing, ♂ 4·9–6·2 mm., ♀ 4·4–5·7 mm.

Distribution: New South Wales, Victoria, southern Queensland—principally tablelands.

Material examined: *New South Wales*: Mount Wilson, Blue Mountains, viii 1958 (*holotype* ♂, AM), iii iv v vi vii viii ix x xii 1956–1964 (*paratypes,* 7 ♂, 7 ♀, AM, 1 ♂, 1 ♀, BM, 1 ♂, USNM), D.K.M., ii 1936 (*paratype* ♀, CSIRO), D. F. Waterhouse; Mount York, Blue Mountains, x 1960 (*paratype* ♀, AM), D.K.M.; Wentworth Falls, xi 1958 (*paratype* ♂, AM), D.K.M.; Gowee Gulch, near Rylstone, viii 1956 (*paratype* ♀, AM), D.K.M.; Royal National Park, near Sydney, i ix 1955–1957 (*paratypes,* 2 ♂, 1 ♀, AM), D.K.M.; Colo Vale, near Mittagong, iii 1957 (*paratype* ♀, USNM), W. W. Wirth; Clyde Mountain, near Braidwood, x 1960 (*paratypes,* 2 ♂, CSIRO), D. H. C. and S. J. Paramonov, ii 1961 (*paratypes,* 3 ♂, AM), D.K.M.; Gwydir Highway, 72 miles W of Grafton, xi 1964 (1 ♂, AM), D.K.M. *Victoria*: Warburton, iv 1963 (1 ♀, AM), D.K.M.; Cement Creek, near Warburton, x 1961 (2 ♂, CSIRO), D.H.C.; Mount Beauty, near Bright, x 1961 (1 ♂, CSIRO), D.H.C.; Noorinbee, near Orbost, xi 1965 (1 ♂, NMV), A. Neboiss. *Queensland*: Lamington National Park, x 1934 (1 ♀, UQ), F. A. Perkins.

Habitat: forest country, especially near streams.

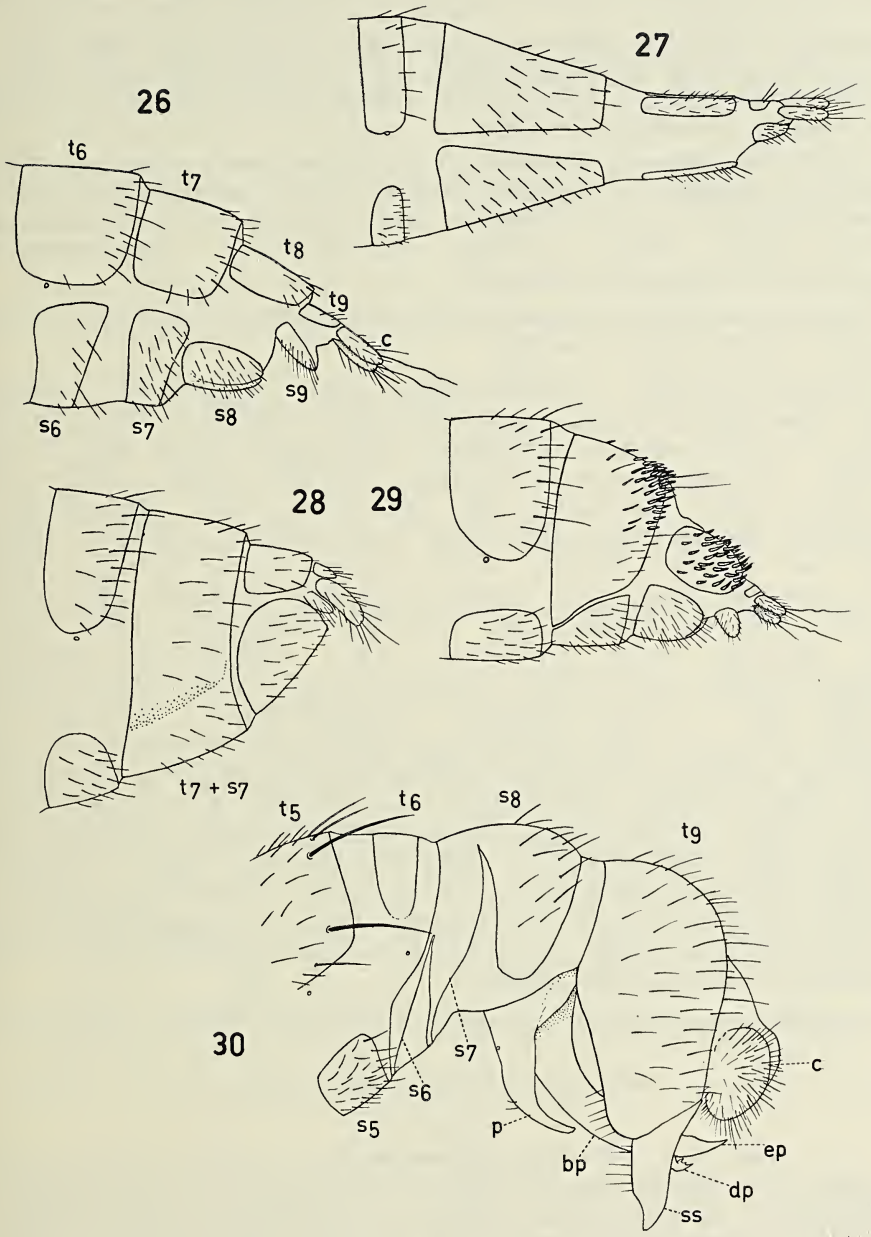
Diplogeomyza maculipennis (Malloch), new comb.

(Fig. 24)

Huttonomyia maculipennis Malloch, 1926: 552, Fig. 6 (wing).

Malloch's description and his figure of the wing are adequate for identification. The wing pattern is particularly characteristic. The species is evidently closely related to *D. pectinervis,* but is without crossveins in the marginal cell. The distinct brown band on the sternopleuron is evidence of relationship to *D. signata* and *media,* which have a similar female postabdomen. It is the only species of the genus with the eyes distinctly longer than high.

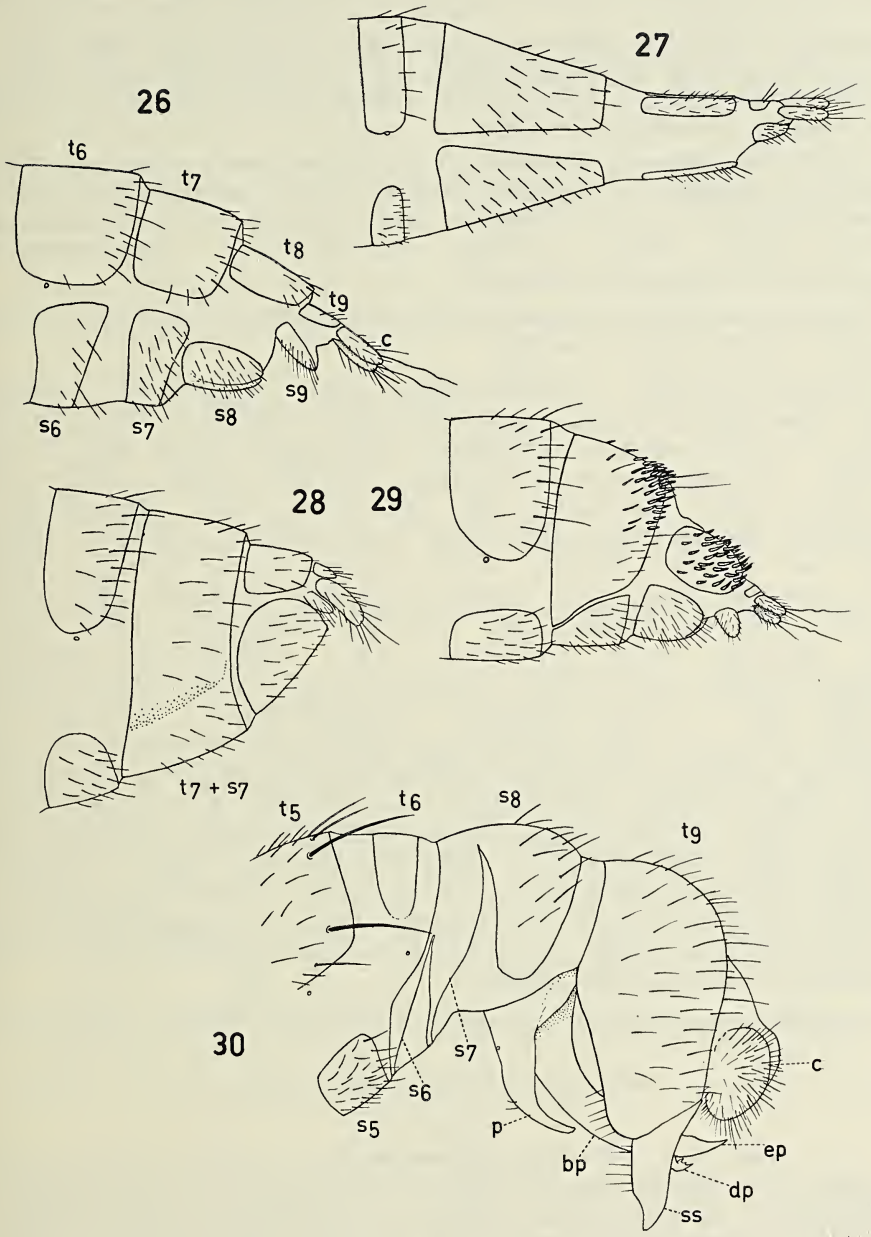
Epandrium (Fig. 24A) with surstylus very short, narrowed in basal half, produced into a short angular projection of posterior side; paramere (Fig. 24B) elongate, exceeding surstylus, bent forward near base, rounded at apex, more slender than in *D. pectinervis* and without internal carina; sternite 9 sclerotized on each side of and in front of aedeagus, with a small gibbosity on each side in front of which are two setulae, internal part



Figs 26–30

26, *Diplogeomyza*, group 1. Diagram of ♀ postabdomen; 27, *Diplogeomyza*, group 2. Diagram of ♀ postabdomen; 28, *Diplogeomyza*, group 3. Diagram of ♀ postabdomen; 29, *Diplogeomyza*, group 4. Diagram of ♀ postabdomen; 30, *Diplogeomyza tridens*, sp nov., Royal National Park; ♂ postabdomen.

c, cercus; bp, basiphallus; dp, distiphallus; ep, epithallus; p, paramere; s5–s9, sternite 5 – sternite 9; t5–t9, tergite 5 – tergite 9.



Figs 26–30

26, *Diplogeomyza*, group 1. Diagram of ♀ postabdomen; 27, *Diplogeomyza*, group 2. Diagram of ♀ postabdomen; 28, *Diplogeomyza*, group 3. Diagram of ♀ postabdomen; 29, *Diplogeomyza*, group 4. Diagram of ♀ postabdomen; 30, *Diplogeomyza tridens*, sp nov., Royal National Park; ♂ postabdomen.

c, cercus; bp, basiphallus; dp, distiphallus; ep, epithallus; p, paramere; s5–s9, sternite 5 – sternite 9; t5–t9, tergite 5 – tergite 9.

(*Gabelplatte*) rather weak; aedeagus (Fig. 24C) with basiphallus forming a sclerotized tube, desclerotized on distal part of right side, where it gives rise to the distiphallus, with a straight, slender epiphallus at distal end; distiphallus directed to right, a large oblong sclerite covering most of its left side, a pair of longitudinal pigmented strips on right side, each with two short processes before the apex; cerci longer than surstyli, with numerous hairs, longest on posterior surface.

Female postabdomen as described for *D. pectinervis* with the following differences: segment 7 incompletely desclerotized on median line; sternite 8 transverse, divided into two rounded lobes by a deep median sinuation in posterior margin; tergite 9 vestigial, represented by a very narrow bare transverse strip above bases of cerci.

Distribution: south-east Queensland; eastern New South Wales; Victoria; Tasmania; south-western Australia.

Material examined (localities only given): *Queensland*: Stanthorpe (UQ). *New South Wales* and *Australian Capital Territory*: Mount Gibraltar National Park, 64 miles W of Grafton (AM); Ponds Creek, E of Armidale (CSIRO); Wootton, near Bulahdelah (CSIRO); Mount Wilson, Blue Mountains (AM); Katoomba, Blue Mountains (AM); Blue Mountains (SPHTM); South Creek, Dee Why, near Sydney (USNM); McCarr's Creek, near Sydney (CSIRO); Manly Reservoir, near Sydney (CSIRO); Royal National Park, near Sydney (*holotype* SPHTM, AM); Otford, Illawarra District (AM); Colo Vale, near Mittagong (AM, USNM); Clyde Mountain, near Braidwood (AM); Monga, near Braidwood (CSIRO); Cotter River, A.C.T. (CSIRO); Coree Creek, A.C.T. (CSIRO); 11 miles S of Eden (CSIRO); Leather Barrel Creek, Kosciusko (CSIRO). *Victoria*: Lorne (SAM); Bright (CSIRO); Ferntree Gully (AM); Noorinbee, near Orbost (NMV). *Tasmania*: Marakoopa Caves, near Mole Creek (AM); 12 miles S of Wilmot (AM); 3 miles S of Oonah, Waratah highway (AM); Hellyer Gorge, Waratah Highway (AM); Waratah (SAM); Corinna (AM); Lake Margaret (CSIRO); 13 miles NW of Queenstown (CSIRO); Strahan (SAM); Eagle Eagle Creek, Gordon River, (CSIRO); Franklin River Crossing, Lyell Highway (AM); near Russell Falls, Mount Field National Park (AM); Hobart (UQ); Eaglehawk Neck (AM). *Western Australia*: Beedelup Falls (CSIRO).

Habitat: sclerophyll forest (especially the richer forms) and rain forest.

Diplogeomyza pectinervis, sp. nov.

(Figs. 5, 25)

♂ ♀. Head pale yellowish with reddish brown marks on frons; antennae yellowish with brown apices; palpi brown except at bases. Mesonotum reddish-brown with irregular yellowish longitudinal stripes including an acrostichal, a dorsocentral, and an intra-alar pair which contain a brown dot at the base of each setula, also the usual pale stripe on lateral margin; pleura pale yellowish suffused with brown, a broad upper marginal brown band. Legs yellowish; coxae paler; fore femur brown; middle and hind femora with dark brown apices. Wings greyish hyaline with dark spots as follows: one on fork of veins 2 and 3, faint ones on vein 4 near base of discal cell, and on apex of vein 6, an apical one on vein 1 and on vein 2, a preapical one on vein 3 and vein 4, a strong mark along anterior and posterior crossveins, each of which spreads for a short distance along vein 4 to make a T-shaped mark, a series of two to five spots in marginal cell. Abdomen brown.

(*Gabelplatte*) rather weak; aedeagus (Fig. 24C) with basiphallus forming a sclerotized tube, desclerotized on distal part of right side, where it gives rise to the distiphallus, with a straight, slender epiphallus at distal end; distiphallus directed to right, a large oblong sclerite covering most of its left side, a pair of longitudinal pigmented strips on right side, each with two short processes before the apex; cerci longer than surstyli, with numerous hairs, longest on posterior surface.

Female postabdomen as described for *D. pectinervis* with the following differences: segment 7 incompletely desclerotized on median line; sternite 8 transverse, divided into two rounded lobes by a deep median sinuation in posterior margin; tergite 9 vestigial, represented by a very narrow bare transverse strip above bases of cerci.

Distribution: south-east Queensland; eastern New South Wales; Victoria; Tasmania; south-western Australia.

Material examined (localities only given): *Queensland*: Stanthorpe (UQ). *New South Wales* and *Australian Capital Territory*: Mount Gibraltar National Park, 64 miles W of Grafton (AM); Ponds Creek, E of Armidale (CSIRO); Wootton, near Bulahdelah (CSIRO); Mount Wilson, Blue Mountains (AM); Katoomba, Blue Mountains (AM); Blue Mountains (SPHTM); South Creek, Dee Why, near Sydney (USNM); McCarr's Creek, near Sydney (CSIRO); Manly Reservoir, near Sydney (CSIRO); Royal National Park, near Sydney (*holotype* SPHTM, AM); Otford, Illawarra District (AM); Colo Vale, near Mittagong (AM, USNM); Clyde Mountain, near Braidwood (AM); Monga, near Braidwood (CSIRO); Cotter River, A.C.T. (CSIRO); Coree Creek, A.C.T. (CSIRO); 11 miles S of Eden (CSIRO); Leather Barrel Creek, Kosciusko (CSIRO). *Victoria*: Lorne (SAM); Bright (CSIRO); Ferntree Gully (AM); Noorinbee, near Orbost (NMV). *Tasmania*: Marakoopa Caves, near Mole Creek (AM); 12 miles S of Wilmot (AM); 3 miles S of Oonah, Waratah highway (AM); Hellyer Gorge, Waratah Highway (AM); Waratah (SAM); Corinna (AM); Lake Margaret (CSIRO); 13 miles NW of Queenstown (CSIRO); Strahan (SAM); Eagle Eagle Creek, Gordon River, (CSIRO); Franklin River Crossing, Lyell Highway (AM); near Russell Falls, Mount Field National Park (AM); Hobart (UQ); Eaglehawk Neck (AM). *Western Australia*: Beedelup Falls (CSIRO).

Habitat: sclerophyll forest (especially the richer forms) and rain forest.

Diplogeomyza pectinervis, sp. nov.

(Figs. 5, 25)

♂ ♀. Head pale yellowish with reddish brown marks on frons; antennae yellowish with brown apices; palpi brown except at bases. Mesonotum reddish-brown with irregular yellowish longitudinal stripes including an acrostichal, a dorsocentral, and an intra-alar pair which contain a brown dot at the base of each setula, also the usual pale stripe on lateral margin; pleura pale yellowish suffused with brown, a broad upper marginal brown band. Legs yellowish; coxae paler; fore femur brown; middle and hind femora with dark brown apices. Wings greyish hyaline with dark spots as follows: one on fork of veins 2 and 3, faint ones on vein 4 near base of discal cell, and on apex of vein 6, an apical one on vein 1 and on vein 2, a preapical one on vein 3 and vein 4, a strong mark along anterior and posterior crossveins, each of which spreads for a short distance along vein 4 to make a T-shaped mark, a series of two to five spots in marginal cell. Abdomen brown.

Arista plumose. Scutellum with four bristles and moderately numerous coarse setulae; one sternopleural. Wing with two to five incomplete crossveins in the blackish spots in marginal cell, which extend from vein 2 towards costa but do not reach the latter.

Epandrium (Fig. 25A) with surstylus rather short and broad, very obtuse, the base slightly dilated; paramere (Fig. 25B) as long as surstylus, rather broad, obtuse, bent forward near base, with a longitudinal carina on inner surface making it triangular in section; aedeagus (Fig. 25C) with rather long tubular sclerotized basiphallus, bilaterally compressed at its distal end, the distiphallus arising from anterior surface of basiphallus as a simple, membranous tube; cerci nearly as long as surstyli, with long hairs, particularly on dorsal surface.

Female postabdomen with segment 6 similar to segment 5 but slightly shorter, some short spines near posterior margin of tergite 6; segment 7 shorter, the tergite with numerous short spines, narrowly divided at median line, not produced ventrally at sides; sternite 7 transversely narrowed, posterior margin straight; tergite 8 divided into two well separated spinose plates; sternite 8 trapezoid, the posterior margin almost straight with a small median notch; tergite 9 reduced to a narrow transverse band, with a pair of setulae near centre; sternite 10 normal, setulose; cerci short.

Dimensions: total length, ♂ 2·7–5·6 mm., ♀ 3·5–5·3 mm.; length of thorax, ♂ 1·8–3·5 mm., ♀ 2·0–3·1 mm.; length of wing, ♂ 3·9–6·1 mm., ♀ 3·9–6·8 mm.

Distribution: New South Wales and southern Queensland—coast and eastern part of tablelands.

Material examined: *New South Wales*: Kurrajong, xii 1959 (*holotype* ♂, AM), x xii 1959–1966 (*paratypes,* 1 ♂, 2 ♀, AM), 1 ♂, 1 ♀, BM), D.K.M.; Mount Wilson, Blue Mountains, xi 1959 (*paratype* ♀, AM), D.K.M.; Wollombi, near Cessnock, viii 1956 (*paratype* ♀, AM), D.K.M.; Palm Grove, near Wyong, vii 1961 (*paratype* ♀, AM), D.K.M.; Mooney Mooney Creek, near Gosford, ix 1956 (*paratypes,* 3 ♀, AM), D.K.M.; Royal National Park, south of Sydney, i iii iv vi viii ix xii 1955–1964 (*paratypes,* 4 ♂, 9 ♀, AM, 1 ♂, BM, 1 ♂, QM, 1 ♀, USNM), D.K.M.; Colo Vale, near Mittagong, i iii 1957 (*paratypes,* 1 ♂, 1 ♀, USNM), 1 ♂, AM), W. W. Wirth; Macquarie Falls, near Robertson, x 1960 (*paratype* ♂, CSIRO), D.H.C.; Kangaroo Valley, ix 1960 (*paratype* ♂, CSIRO), D.H.C.; Cabbage Tree Creek, near Clyde Mountain, x 1960 (*paratype* ♂, CSIRO), D.H.C.; 4 miles N of Bateman's Bay, ix 1959 (*paratype* ♂, CSIRO), Z. Liepa. Queensland: Binna Burra, Lamington National Park, i ii 1961 (1 ♂, 1 ♀, AM), D.K.M.

Habitat: stream margins, principally in rain forest and wet sclerophyll forest.

Acknowledgements

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Arista plumose. Scutellum with four bristles and moderately numerous coarse setulae; one sternopleural. Wing with two to five incomplete crossveins in the blackish spots in marginal cell, which extend from vein 2 towards costa but do not reach the latter.

Epandrium (Fig. 25A) with surstylus rather short and broad, very obtuse, the base slightly dilated; paramere (Fig. 25B) as long as surstylus, rather broad, obtuse, bent forward near base, with a longitudinal carina on inner surface making it triangular in section; aedeagus (Fig. 25C) with rather long tubular sclerotized basiphallus, bilaterally compressed at its distal end, the distiphallus arising from anterior surface of basiphallus as a simple, membranous tube; cerci nearly as long as surstyli, with long hairs, particularly on dorsal surface.

Female postabdomen with segment 6 similar to segment 5 but slightly shorter, some short spines near posterior margin of tergite 6; segment 7 shorter, the tergite with numerous short spines, narrowly divided at median line, not produced ventrally at sides; sternite 7 transversely narrowed, posterior margin straight; tergite 8 divided into two well separated spinose plates; sternite 8 trapezoid, the posterior margin almost straight with a small median notch; tergite 9 reduced to a narrow transverse band, with a pair of setulae near centre; sternite 10 normal, setulose; cerci short.

Dimensions: total length, ♂ 2·7–5·6 mm., ♀ 3·5–5·3 mm.; length of thorax, ♂ 1·8–3·5 mm., ♀ 2·0–3·1 mm.; length of wing, ♂ 3·9–6·1 mm., ♀ 3·9–6·8 mm.

Distribution: New South Wales and southern Queensland—coast and eastern part of tablelands.

Material examined: *New South Wales*: Kurrajong, xii 1959 (*holotype* ♂, AM), x xii 1959–1966 (*paratypes,* 1 ♂, 2 ♀, AM), 1 ♂, 1 ♀, BM), D.K.M.; Mount Wilson, Blue Mountains, xi 1959 (*paratype* ♀, AM), D.K.M.; Wollombi, near Cessnock, viii 1956 (*paratype* ♀, AM), D.K.M.; Palm Grove, near Wyong, vii 1961 (*paratype* ♀, AM), D.K.M.; Mooney Mooney Creek, near Gosford, ix 1956 (*paratypes,* 3 ♀, AM), D.K.M.; Royal National Park, south of Sydney, i iii iv vi viii ix xii 1955–1964 (*paratypes,* 4 ♂, 9 ♀, AM, 1 ♂, BM, 1 ♂, QM, 1 ♀, USNM), D.K.M.; Colo Vale, near Mittagong, i iii 1957 (*paratypes,* 1 ♂, 1 ♀, USNM), 1 ♂, AM), W. W. Wirth; Macquarie Falls, near Robertson, x 1960 (*paratype* ♂, CSIRO), D.H.C.; Kangaroo Valley, ix 1960 (*paratype* ♂, CSIRO), D.H.C.; Cabbage Tree Creek, near Clyde Mountain, x 1960 (*paratype* ♂, CSIRO), D.H.C.; 4 miles N of Bateman's Bay, ix 1959 (*paratype* ♂, CSIRO), Z. Liepa. Queensland: Binna Burra, Lamington National Park, i ii 1961 (1 ♂, 1 ♀, AM), D.K.M.

Habitat: stream margins, principally in rain forest and wet sclerophyll forest.

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References

HARRISON, R. A., 1959.—Acalypterate Diptera of New Zealand. *Bull. N.Z. Dep. sci. industr. Res.*, 128: vii + 382 pp.

HENDEL, F., 1917.—Beiträge zur Kenntnis der acalyptraten Musciden. *Dtsch. ent. Zeitschr.*, 1917: 33–47.

LOEW, H., 1862.—Monographs of the Diptera of North America. Part I. *Smithson. misc. Coll.*, 6, art. 1: xxiv + 221 pp.

MCALPINE, D. K., 1960.—A Review of the Australian species of Clusiidae (Diptera, Acalyptrata). *Rec. Aust. Mus.*, 25: 63–94.

MALLOCH, J. R., 1926.—Notes on Australian Diptera. No. ix. PROC. LINN. SOC. N.S.W., 51: 545–554.

TONNOIR, A. L., and MALLOCH, J. R., 1927.—New Zealand Muscidae Acalyptratae. Part III. Helomyzidae. *Rec. Canterbury [N.Z.] Mus.*, 3: 83–100, pl. 18–20.

WHEELER, M. R., 1955.—*Paraneossos*, a new genus of Trixoscelidae (Diptera: Acalyptrata). *Wasmann J. Biol.*, 13: 107–112.

References

HARRISON, R. A., 1959.—Acalypterate Diptera of New Zealand. *Bull. N.Z. Dep. sci. industr. Res.*, 128: vii + 382 pp.

HENDEL, F., 1917.—Beiträge zur Kenntnis der acalyptraten Musciden. *Dtsch. ent. Zeitschr.*, 1917: 33–47.

LOEW, H., 1862.—Monographs of the Diptera of North America. Part I. *Smithson. misc. Coll.*, 6, art. 1: xxiv + 221 pp.

MCALPINE, D. K., 1960.—A Review of the Australian species of Clusiidae (Diptera, Acalyptrata). *Rec. Aust. Mus.*, 25: 63–94.

MALLOCH, J. R., 1926.—Notes on Australian Diptera. No. ix. PROC. LINN. SOC. N.S.W., 51: 545–554.

TONNOIR, A. L., and MALLOCH, J. R., 1927.—New Zealand Muscidae Acalyptratae. Part III. Helomyzidae. *Rec. Canterbury [N.Z.] Mus.*, 3: 83–100, pl. 18–20.

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